

APPLIED MINOR TACTICS

(Including Map Problems and the War Game)

Map Reading

Map Sketching

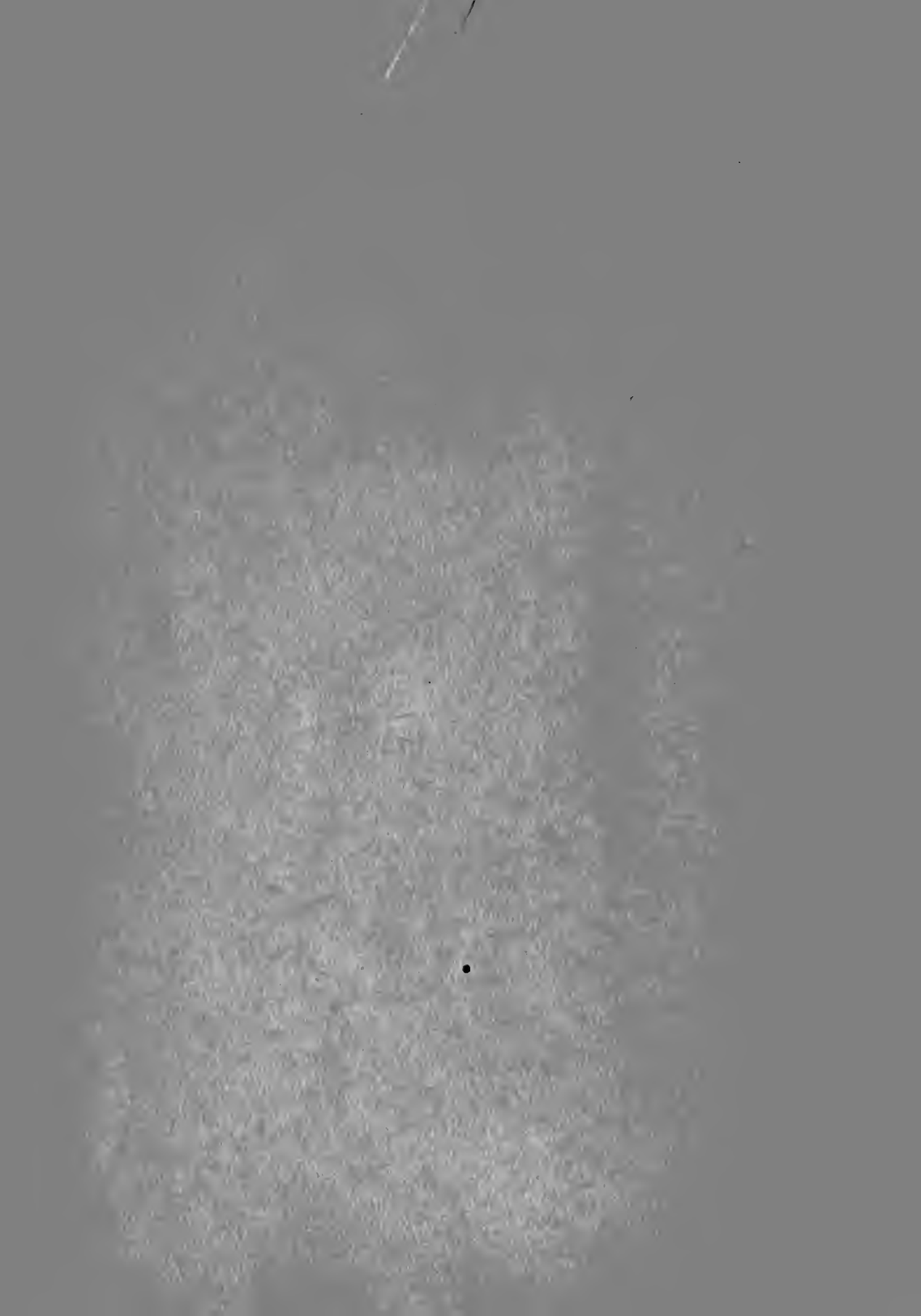


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APPLIED MINOR TACTICS

(Including Map Problems and the War Game)

MAP READING AND MAP SKETCHING

SIMPLIFIED FOR BEGINNERS

Especially Adapted to the Instruction of Noncom-
missioned Officers and Privates in their
Duties in Campaign

BY CAPT. JAS. A. MOSS
24th U. S. Infantry

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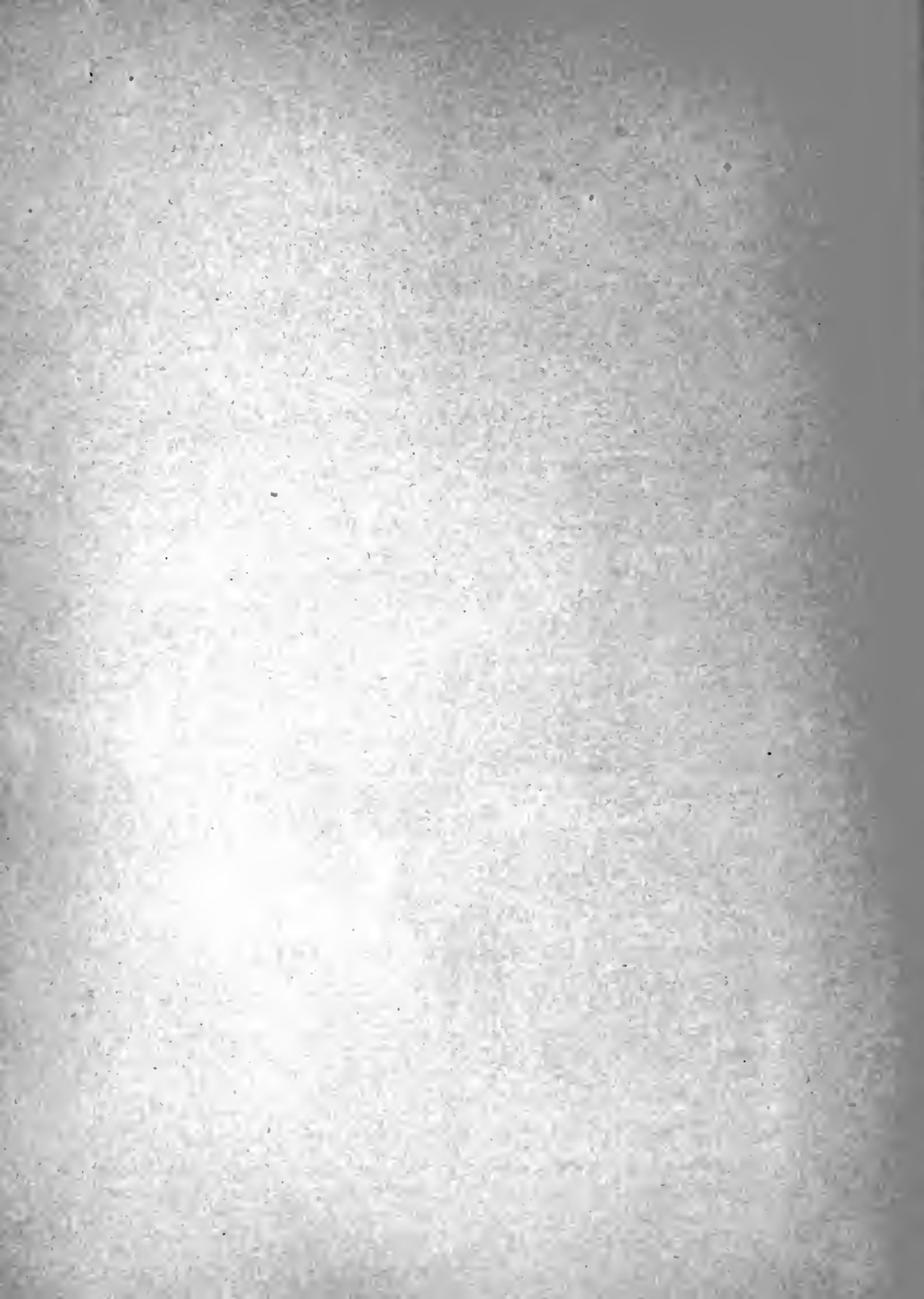
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CHAPTER I.

MAP READING.

INTRODUCTION.

1. This chapter on map reading presents two phases of the subject. In order that the beginner may grasp the rudimentary principles without difficulty, the subject is first considered in the most elementary manner, and later, for the benefit of the student who has already acquired a *slight* knowledge of the subject, the same ground is covered in a less elementary way.

For some unknown reason, military map reading has always been considered a very difficult subject to master, and the beginner, starting out with this idea, tries to find it difficult. Therefore, it is not strange that he finds the subject hard to understand and laborious to study. As a matter of fact, it is far easier to learn to read a map than it is to learn to patrol, write messages, give proper orders, etc.

The most ignorant tourist easily uses the complicated maps in the guide books to find his way about; men, women and children, riding in automobiles, use the road maps of the country without a thought of having acquired the knowledge of some difficult art; but as soon as the military student considers map reading, he decides he has a most difficult subject to master, and he proceeds, unconsciously, to make it difficult.

PART I.

2. A **military map** is a drawing, made to represent some section of country, showing the things that are of military importance, such as roads, streams, bridges, houses, and hills. The map must be so drawn that you can tell the distance between any two points, the heights of hills, and the relative positions of everything shown.

Map Reading.

3. By **map reading** is meant the ability to get a clear idea of the ground represented by the map with the same ease one reads a book or newspaper. This means to grasp at once the distance on the ground cor-

responding to a given distance on the map, to get a correct idea of the network of streams and roads, heights, slopes, depressions, and all forms of military cover and obstacles. The first thing necessary in map reading, therefore, is to have a thorough knowledge of the scale of maps.

The Scale of a Map.

4. In order that you may be able to tell the distance between any two points, for instance, between Salem and Boling on the Elementary Map (in back of book), the map must be so drawn that a certain distance, say one inch, on the map always represents a certain distance on the ground, say one mile.

Suppose Boling is 5 miles from Salem, and 1 inch on the map is to represent 1 mile on the ground; then on the map Boling would be shown 5 inches from Salem, and any person knowing the scale of that map (1 inch = 1 mile), could at once determine the distance from Salem to Boling. He would measure the number of inches between the two towns and know that the actual distance on the ground was as many miles as he had measured inches. Suppose, for example, he found it was $3\frac{1}{2}$ inches to Boling; then he would know that the two places were $3\frac{1}{2}$ miles apart.

Another example, suppose the scale of your map reads 6 inches = 1 mile and you wish to know the distance you have to march from a farm to a certain crossroads. You measure the distance between these two points on the map and find it to be 9 inches. You at once know that the actual distance, *ground distance*, is $1\frac{1}{2}$ miles. For, if 6 inches on the map equals 1 mile on the ground, 9 inches must equal $1\frac{1}{2}$ miles—just as 12 inches would equal 2 miles, and 24 inches would represent 4 miles on the ground.

5. Instead of writing the scale on the map thus, *6 inches = 1 mile* or *6 inches to the mile* (which means the same thing), you may find the scale represented by a long line or pair of lines divided into numbered lengths. Thus:

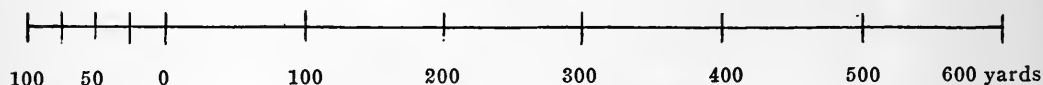


Figure 1.

In fact, this is even a simpler method of indicating the scale of a map. You do not have to convert measurements of inches into miles, yards, feet, or whatever inches on the map represent on the ground. No ruler

of inches is necessary. From the 0 on the scale shown in Figure 1 to the 600, is 600 yards. This means that this length on the map represents 600 yards on the ground, and as the scale has 7 subdivisions of 100 yards each, and one of these again subdivided into four parts of 25 yards each, you can quickly find out the *ground distance* between points on the map.

6. It must be noted here that each subdivision of the scale is marked, not with its actual length, *but with the distance which it represents on the ground*. This is ordinarily known as a *graphical scale*, and is the most frequent method of indicating the scale of a map.

Example. If you wish to determine the distance from A to B, along the road shown in Figure 2,



Figure 2.

take a piece of paper and lay its edge along the road; mark the edge opposite A and opposite B; lay the edge of the paper along the scale (shown in Figure 2), and it shows the distance to be 675 yards. When you have to determine several distances from the map, it is more convenient first to lay the edge of the paper along the scale and mark off divisions like those of the scale. You then have a copy of the scale which you can quickly apply to any portion of the map and read off the *ground distances* instantly. This has supposedly been done in Figure 2, where a rough copy of the actual scale is shown applied to the road between A and B.

Example. Along the lower border of the Elementary Map is a graphical scale of miles and a second graphical scale, reading in yards,. How far is it from York to Oxford by the most direct road (Valley Pike)? Take a piece of paper and lay its edge along the scale of miles; mark off similar divisions on the edge of the paper. This gives you a length of 1 mile. Apply this along the Valley Pike, starting at York. You will find the distance is 4 times the length of the paper and about $\frac{1}{2}$ mile over. Therefore, as the scale length you used represents 1 mile, the distance is $4\frac{1}{2}$ miles. If you desired to know the distance in yards from York to the Cemetery on the County Road, you would repeat the same process, taking your distances from the graphical scale reading yards, and you would find the distance to be 750 yards.

Using the scale of miles, you can find the distance from York to Salem by road (3 miles), from Salem to Boling by road (4 miles), and so on.

7. *The distances between points on a map represent corresponding ground distances measured on the level (horizontal distances).* For example, the distance from York to Boling that you would walk would include the extra distance required in ascending and descending the hill and valley between these two points. The distance on the map, however, represents the distance between the towns, measured as though the intervening ground were absolutely level.

8. **Direction.** In order that the map may correctly show the positions of the different roads, streams, hills, houses, etc., with respect to one another, they must be given the same relative locations on the map that they occupy on the ground. The map must also show the points of the compass.

9. **Meridians.** If you look along the upper left hand border of the Elementary Map you will see two arrows pointing towards the top of the map, thus:



Figure 3.

They are pointing in the direction that is north on this map. The

arrow with a full barb points toward the north pole of the earth. The arrow with but half a barb points toward what is known as the *magnetic pole of the earth*. This magnetic pole is a point up in the arctic regions near the *geographical or true north pole*, which, on account of its magnetic qualities, attracts one end of all compass needles and causes them to point towards it. As it is near the true north pole, this serves to indicate the north direction to a person using a compass. The arrow with the full barb is called the *true meridian*, as it points to the *true north pole*. The arrow with the half barb is called the *magnetic meridian* as it points, not accurately towards the *true north pole*, but towards the *magnetic pole*. When you are using a compass, the needle points toward the *magnetic pole*; which is close enough to the *true north* for your purposes.

You now know from the *meridians* that in going from York to Oxford you travel north; from Boling to Salem you must travel south; going from Salem to York requires you to travel west; and from York to Salem you travel east. Suppose you are in command of a patrol at York and are told to go to Salem by the most direct line across country. You look at your map and see that Salem is exactly east of York. Next you take out your field compass (Figure 16, page 21), raise the lid, hold the box level, allow the needle to settle and see in what direction the north end of the needle points (it would point towards Oxford). You then know the direction of north from York and you can turn to your right and go due east towards Salem.

Having once discovered the direction of north on the ground, you can go to any point shown on your map without other assistance. If you stand at York, facing north and refer to your map, you need no guide to tell you that Salem lies directly to your right; Oxford straight in front of you; Boling in a direction about halfway between the directions of Salem and Oxford, and so on.

10. Contours. So far we have only dealt with the methods of representing the horizontal (level) distances between points, and the directions with regard to the different points of the compass (north, south, east and west). In order to show on a map a correct representation of ground, the *differences in elevation* (vertical distances) of the terrain (ground)—the hills, valleys, ravines and flat land—must be indicated. This is usually done by means of *contours*.

11. A contour is a line on a map which shows the route one might follow on the ground and walk on the absolute level. If you went half way

up the side of a hill and, starting there, walked entirely around the hill, neither going up any higher nor down any lower, and you made a sketch of the route you had followed, the line representing your path around the hill would be, in effect, a contour. By means of these contour lines at different vertical (up and down) elevations, the hills, valleys, etc., can be graphically shown on a map.

For example, on the Elementary Map, Sandy Ridge and Long Ridge are two isolated hills: Suppose this country were flooded with water 20 feet above the lowest point (Sandy Creek), the lines (contours) around Sandy Ridge and Long Ridge marked 20 would then mark the edge of the water (water line) around the lower slopes of these hills. The "20" means that the contours so marked show the lines of the same elevation on the ground that are just 20 feet vertically above the lowest point in the section of country shown by this map. Now suppose the water rose 20 feet more, that is, to a height of 40 feet. Then the contours marked 40 would indicate the water line around these hills—all the ground towards the 20-foot contour and below would be inundated. If the water rose to 60 feet, then all of Long Ridge would be under water, but the two small knolls on Sandy Ridge outlined by the 60-foot contour, would still be out of water, as their crests are shown to be slightly higher (66, 68 and 65). Contours are taken at a fixed vertical distance apart. In this case it is 20 feet.

12. An excellent idea of what is meant by contours and contour-lines can be gotten from Figures 4 and 5. Let us suppose that formerly the island represented in Figure 4 was entirely under water and that by a sudden disturbance the water of the lake fell until the island stood 20 feet above the water, and that later several other sudden falls of the water, 20 feet each time, occurred, until now the island stands 100 feet out of the lake, and at each of the 20 feet elevations a distinct water line is left. These water lines are perfect contour-lines measured from the surface of the lake as a reference (or datum) plane. Figure 5 shows the contour-lines in Figure 4 projected, or shot down, on a horizontal (level) surface. It will be observed that on the gentle slopes, such as F-H (Fig. 4), the contours (20, 40) are far apart. But on the steep slopes, as R-O, the contours (20, 40, 60, 80, 100), are close together. Hence, it is seen that *contours far apart on a map indicate gentle slopes, and contours close together, steep slopes*. It is also seen that the shape of the contours gives an accurate idea of the form of the island. The contours in Fig. 5 give an exact representation not only of the general form of the island, the

Figure 4.

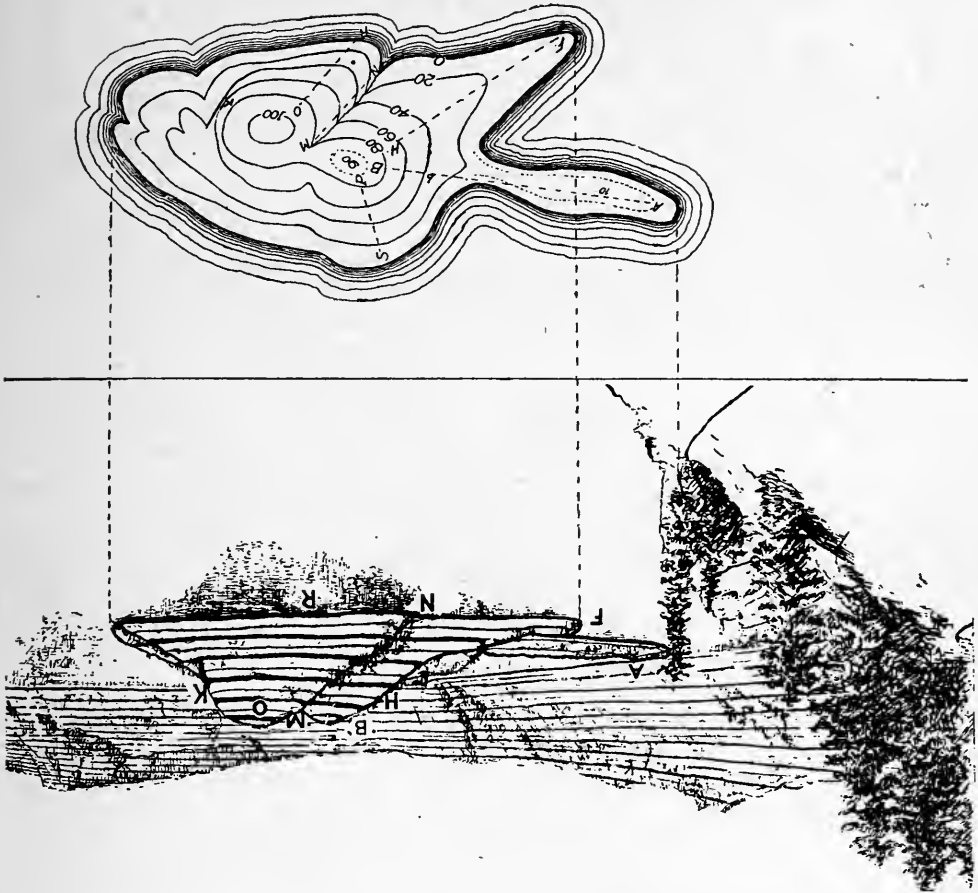


Figure 5.

two peaks, O and B, the stream, M-N, the Saddle, M, the water shed from F to H, and steep bluff at K, but they also give the slopes of the ground at all points. From this we see that the slopes are directly proportional to the nearness of the contours—that is, the nearer the contours on a map are to one another, the steeper is the slope, and the farther the contours on a map are from one another, the gentler is the slope. A wide space between contours, therefore, represents level ground.

13. The contours of a cone (Figure 6) are circles of different sizes, one within another, and the same distance apart, because the slope of a cone is at all points the same.

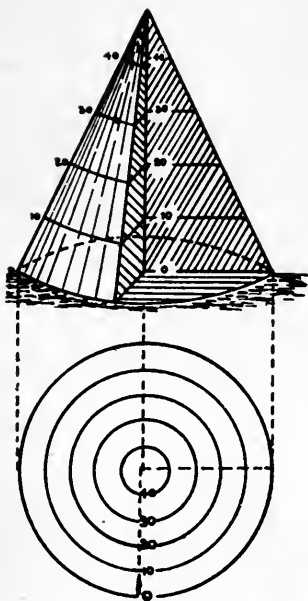


Figure 6.

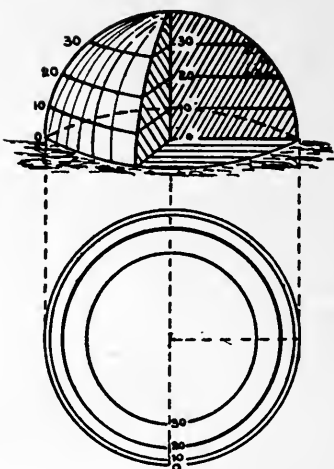


Figure 7.

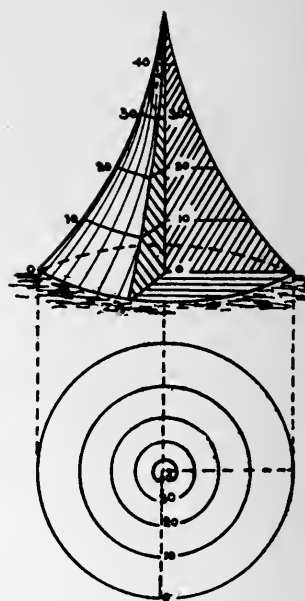


Figure 8.

The contours of a half sphere (Figure 7), are a series of circles, far apart near the center (top), and near together at the outside (bottom), showing that the slope of a hemisphere varies at all points, being nearly flat on top and increasing in steepness toward the bottom.

The contours of a concave (hollowed out) cone (Figure 8) are close together at the center (top) and far apart at the outside (bottom).

14. The following additional points about contours should be remembered:

(a) *A Water Shed or Spur*, along which rain water divides, flowing away from it on both sides, is indicated by the higher contours bulging out toward the lower ones (F-H, Fig. 5, page 7).

(b) *A Water Course or Valley*, along which rain falling on both sides of it joins in one stream, is indicated by the lower contours curving in toward the higher ones (M-N, Fig. 5).

(c) The contours of different heights which unite and become a single line, represent a vertical cliff. (K, Fig. 5.)

(d) Two contours which cross each other represent an overhanging cliff.

(e) A closed contour without another contour in it, represents either

a hilltop (figure cone) or a depression (a volcano) depending on whether its reference number is greater or smaller than that of the outer contour. A hilltop is shown when the closed contour is higher than the contour next to it; a depression is shown when the closed contour is lower than the one next to it.

15. If the student will first examine the drainage system, as shown by the courses of the streams on the map, he can readily locate all the valleys, as the streams must flow through valleys. Knowing the valleys, the ridges or hills can easily be placed, even without reference to the numbers on the contours.

For example: On the Elementary Map, Woods Creek flows north and York Creek flows south. They rise very close to each other, and the ground between the points at which they rise must be higher ground, sloping north on one side and south on the other, as the streams flow north and south, respectively, see the ridge running west from Twin Hills.

The course of Sandy Creek indicates a long valley, extending almost the entire length of the map. Meadow Creek follows another valley, and Deep Run another. When these streams happen to join other streams, the valleys must open into each other.

16. **Scale of Map Distances.** On the Elementary Map, below the scale of miles and scale of yards, is a scale similar to the following one:



M.D.

Figure 9.

The left-hand division is marked $\frac{1}{2}^\circ$; the next division (one-half as long) 1° ; the next division (one-half the length of the 1° division) 2° , and so on. The $\frac{1}{2}^\circ$ division means that where adjacent contours on the map are just that distance apart, the ground has a slope of $\frac{1}{2}$ a degree between these two contours, and slopes *up* towards the contour with the higher reference number; a space between adjacent contours equal to the 1° space shown on the scale means a 1° slope, and so on.

What is a slope of 1° ? By a slope of 1° we mean that the surface of the ground makes an angle of 1° with the horizontal (a level surface. See Figure 14, page 19). The student should find out the slope of some hill or street and thus get a concrete idea of what the different degrees of slope mean. A road having a 5° slope is very steep.

By means of this scale of M. D.'s on the map, the map reader can determine the slope of any portion of the ground represented, that is, as

steep as $\frac{1}{2}^\circ$ or steeper. Ground having a slope of less than $\frac{1}{2}^\circ$ is practically level.

17. Conventional Signs. In order that the person using a map may be able to tell what are roads, houses, woods, etc., each of these features are represented by particular signs, called *conventional signs*. On the Elementary Map the conventional signs are all labeled with the name of what they represent. By examining this map the student can quickly learn to distinguish the conventional signs of most of the ordinary features shown on maps. These conventional signs are usually graphical representations of the ground features they represent, and, therefore, can usually be recognized without explanation.

For example, the *roads* on the Elementary Map can be easily distinguished. They are represented by parallel lines (=====). The student should be able to trace out the route of the Valley Pike, the Chester Pike, the County road, and the direct road from Salem to Boling.

Private or farm *lanes*, and *unimproved roads* are represented by broken lines (====). Such a road or lane can be seen running from the Barton farm to the Chester Pike. Another lane runs from the Mills farm to the same Pike. The small crossmarks on the road lines indicate *barbed wire fences*; the round circles indicate *smooth wire*; the small, connected ovals (as shown around the cemetery) indicate *stone walls*; and the zig-zag lines (as shown one mile south of Boling) represent *wooden fences*.

Near the center of the map, by the Chester Pike, is an *orchard*. The small circles, regularly placed, give the idea of trees planted in regular rows. Each circle does not indicate a tree, but the area covered by the small circles does indicate accurately the area covered by the orchard on the ground.

Just southwest of Boling a large *woods* (Boling Woods) is shown. Other clumps of woods, of varying extent, are indicated on the map.

The course of Sandy Creek can be readily traced, and the arrows placed along it, indicate the direction in which it flows. Its *steep banks* are indicated by successive dashes, termed *hachures*. A few trees are shown strung along its banks. Baker's Pond receives its water from the little creek which rises in the small clump of timber just south of the pond, and the hachures along the northern end represent the steep banks of a *dam*. Meadow Creek flows northeast from the dam and then northwest towards Oxford, joining Woods Creek just south of that town. York Creek rises in the woods $1\frac{1}{4}$ miles north of York, and flows south through York. It has a west branch which rises in the valleys south of Twin Hills.

A *railroad* is shown running southeast from Oxford to Salem. The hachures, unconnected at their outer extremities, indicate the *fills* or *embankments* over which the track runs. Notice the fills or embankments on which the railroad runs just northwest of Salem; near the crossing of Sandy Creek; north of Baker's Pond; and where it approaches the outskirts of Oxford. The hachures, connected along their outer extremities, represent the *cut* through which the railroad passes. There is only one railroad cut shown on the Elementary Map—about one-quarter of a mile northeast of Baker's Pond—where it cuts through the northern extremity of the long range of hills, starting just east of York. The wagon roads pass through numerous cuts—west of Twin Hills, northern end of Sandy Ridge, southeastern end of Long Ridge, and so on. The small T's along the railroad and some of the wagon roads, indicate *telegraph* or *telephone lines*.

The conventional sign for a *bridge* is shown where the railroad crosses Sandy Creek on a trestle. Other bridges are shown at the points the wagon roads cross this creek. *Houses* or *buildings* are shown in Oxford, Salem, York and Boling. They are also shown in the case of a number of farms represented—Barton farm, Wells farm, Mason's, Brown's, Baker's and others. The houses shown in solid black are substantial structures of brick or stone; the buildings indicated by rectangular outlines are "out buildings," barns, sheds; etc.

18. Example of Method followed in Reading a Map. Suppose you are out in the field in a campaign and are ordered to march to the section of country represented by the Elementary Map and take military control of it. You are given a copy of this map to study over the situation and familiarize yourself with the country. *How would you go about reading this map?*

You would first look at the scale at the bottom of the map and see about how much distance on the map represented a mile on the ground. Then you would look for the meridian and see which direction was north.

Oxford, Boling, Salem and York are the only towns or villages—all small. Oxford is about four miles due north of York and about two and one-half miles west of Boling, and Boling is about four miles north of Salem. A direct road connects Salem and Boling. The Chester Pike runs northwest out of Salem, and then due north, furnishing, with the cross-

roads, means of communication between Oxford and Boling, Oxford and Salem, York and Boling, and York and Salem. A railroad passes through Oxford and Salem.

There are numerous streams in the country, but Sandy Creek, 5 feet deep and 60 feet wide, is the only one of any size. It passes about half-way between Salem and York, flows north for about three miles, turns east, and disappears off the map about a mile south of Boling. The course of this creek and the smaller ones, mark the valleys in the district. Baker's Pond, two miles southeast of Oxford, is the only large body of water.

There are several prominent hills or ridges. Just east of York a range of hills commences, and runs north about three miles, with several east and west spurs. It reaches a height of 80 feet in several places, and completely commands the Chester and Valley Pikes and the valley through which Sandy Creek flows. East of Sandy Creek and nearly a mile northwest of Salem, is a long, "hog-backed" hill (Sandy Ridge), a little over a mile long, rising 60 feet out of the valley, and running north and south. From its crest an extensive view of the valley through which Sandy Creek, the Chester Pike and the railroad run can be obtained. Between Oxford and Boling is a similar hill (Long Ridge) about 40 feet high. About two-thirds of the way between Salem and Boling, the western extremity of a high ridge is shown, with Bald Knob rising to a height of 100 feet above the surrounding low ground. It is the highest point shown on the map. A quarry has been cut into its southern face, to which a switch runs from the railroad. There are several small knolls, notably the one between Bald Knob and Salem.

The country is dotted with farms and orchards, but is lightly timbered, except for the extensive Boling Woods. Some of the roads and lanes are bordered by lines of trees, and the majority of the fences along the roads are of barbed or smooth wire. Telegraph or telephone lines follow the railroad and the principal highways. There are a few stone walls and two swamps.

Three highway bridges span Sandy Creek, one stone, one steel and one of wood. The railroad crosses this creek on a steel trestle about 200 yards long; the track approaching each end of the trestle on a high fill or embankment. The width, depth and steep banks of this creek make these bridges of considerable importance.

PART II.

(Note: Part II presents the subject of Map Reading in a more comprehensive manner than Part I.)

19. A *Map* is a representation on paper of a certain portion of the earth's surface.

20. A *Military Map* is one which shows the relative distances, directions and elevations of all features of military importance on the ground represented.

21. **Scale of Maps.** *A map is drawn to scale*, that is, each unit of distance on the map must bear a fixed proportion to the corresponding distance on the ground. If one inch on the map, for instance, equals one mile (63,360 inches) on the ground, then $\frac{1}{3}$ inch equals $\frac{1}{3}$ of a mile, or $\frac{63,360}{3} = 21,120$ inches on the ground, etc. The term *distance* in this book means horizontal distance; vertical distance is called *elevation* or *depression*, depending on whether the point spoken of is higher or lower than another.

For example (see Fort Leavenworth map in back of book), the distance from Frenchman's (*oc'*) in a straight line to McGuire (*qh'*) is 2,075 yards, but to walk this distance would require the ascent and descent of Sentinel Hill, so that the actual length of travel would be considerably greater than the horizontal distance between the two points. In speaking of distance between towns, boundaries, etc., horizontal distance is always meant. The fixed relation between map distances and corresponding ground distances must be constantly kept in mind.

22. **Methods of Representing Scales.** There are three ways in which the scale of the map may be represented:

1st. By words and figures, as 3 inches = 1 mile; 1 inch = 200 feet.

2nd. By *Representative Fraction* (abbreviated R.F.), which is a fraction whose numerator represents units of distance on the map and whose denominator, units of distance on the ground. For example, R. F. =

$\frac{1 \text{ inch (on map)}}{63,360 \text{ inches (on ground)}}$ which is equivalent to R. F. = $\frac{1}{63,360}$, since 1 mile = 63,360 inches. So the expression, "R. F. $\frac{1}{63,360}$ " on a map merely means that 1 inch on the map represents 63,360 inches (or 1 mile) on the ground. This fraction is usually written with a numerator 1, as above, no definite unit of inches or miles being specified in either the numerator or denominator. In this case the expression means that one unit of distance on the map equals as many of the *same units* on the ground as are in the denominator. Thus, $\frac{1}{63,360}$ means that 1 inch on the map = 63,360 inches

on the ground; 1 foot on the map = 63,360 feet on the ground; 1 yard on the map = 63,360 yards on the ground, etc.

3d. By *Graphical Scale*, that is, a *drawn scale*. A graphical scale is a line drawn on the map, divided into equal parts, each part being marked not with its actual length, but *with the distance which it represents on the ground*. Thus, in Figure 1, page 2, the distance from 0 to 50 represents 50 yards on the ground; the distance from 0 to 100, 100 yards on the ground, etc. And if the scale were applied to road running from A to B (Figure 2, page 3), it would show that the length of the road is 675 yards.

23. It will readily be seen that a map scale must be known by the student in order that he may have a correct idea of the distances between objects represented on the map. This is necessary in determining lengths of march, ranges of small arms and artillery, relative lengths of roads to a given point, etc. Therefore, if under service conditions one should have only a map without a scale, or one with only an R. F. on it, he would first of all be compelled to construct a *graphical scale* to read yards, miles, etc., or one showing how many miles one inch represents. Fortunately, almost every map has a graphical scale, and *there will be but few occasions on which it will be necessary to construct a graphical scale*.

24. **Construction of Scales.** The following are the most usual problems that arise:

1. *Having given the R. F. on a map, to find how many miles on the ground are represented by 1 inch on the map.* Let us suppose that the R. F. is $\frac{1}{21120}$.

Solution.

Now, as previously explained, $\frac{1}{21120}$ simply means that 1 inch on the map represents 21,120 inches on the ground. There are 63,360 inches in 1 mile. 21,120 goes into 63,360 three times—that is to say, 21,120 is $\frac{1}{3}$ of 63,360, and we, therefore, see from this that 1 inch on the map represents $\frac{1}{3}$ of a mile on the ground, and consequently it would take three inches on the map to represent 1 whole mile on the ground. So, we have this general rule: *To find out how many miles 1 inch on the map represents on the ground, divide the denominator of the R. F. by 63,360.*

2. *Being given the R. F. to construct a graphical scale to read yards.* Let us assume that $\frac{1}{21120}$ is the R. F. given—that is to say, 1 inch on the map represents 21,120 inches on the ground, but, as there are 36 inches in 1 yard, $21,120 \text{ inches} = \frac{21120}{36} \text{ yds.} = 586.66 \text{ yds.}$ —that is, 1 inch on the map represents 586.66 yds. on the ground. Now, suppose about a 6-inch scale is desired. Since 1 inch on the map = 586.66 yards on the ground, 6 inches (map) = $586.66 \times 6 = 3,519.96$ yards (ground). In order to get

as nearly a 6-inch scale as possible to represent even hundreds of yards, let us assume 3,500 yards to be the total number to be represented by the scale. The question then resolves itself into this: How many inches on the map are necessary to represent 3,500 yards on the ground. Since, as we have seen, 1 inch (map) = 586.66 yards (ground), as many inches are necessary to show 3,500 yards as 586.66 is contained in 3,500; or, $\frac{3500}{586.66} = 5.96$ inches.

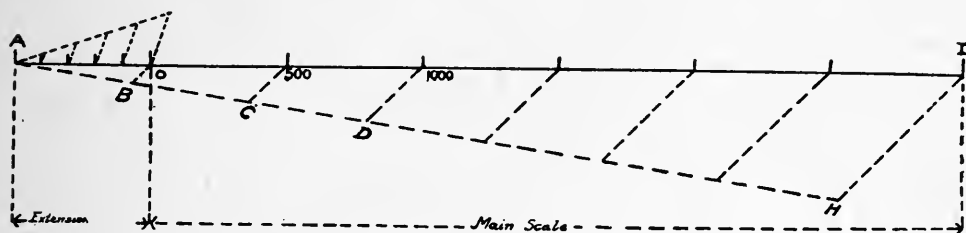


Figure 10.

Now lay off with a scale of equal parts the distance A-I (Figure 10) = 5.96 inches (about 5 and $9\frac{1}{2}$ tenths), and divide it into 7 equal parts by the construction shown in figure, as follows: Draw a line A-H, making any convenient angle with A-I, and lay off 7 *equal* convenient lengths (A-B, B-C, C-D, etc.), so as to bring H about opposite to I. Join H and I and draw the intermediate lines through B, C, etc., parallel to H-I. These lines divide A-I into 7 equal parts, each 500 yards long. The left part, called the *Extension*, is similarly divided into 5 equal parts, each representing 100 yards.

3. *To construct a scale for a map with no scale.* In this case, measure the distance between any two definite points on the ground represented, by pacing or otherwise, and scale off the corresponding map distance. Then see how the distance thus measured corresponds with the distance on the map between the two points. For example, let us suppose that the distance on the ground between two given points is 1 mile and that the distance between the corresponding points on the map is $\frac{3}{4}$ inch. We would, therefore, see that $\frac{3}{4}$ inch on the map = 1 mile on the ground. Hence $\frac{1}{4}$ inch would represent $\frac{1}{3}$ of a mile, and 4-4, or 1 inch, would represent $4 \times \frac{1}{3} = 4-3 = 1\frac{1}{3}$ miles.

The R. F. is found as follows:

$$\text{R. F. } \frac{1 \text{ inch}}{1\frac{1}{3} \text{ mile}} = \frac{63,360 \times 1\frac{1}{3} \text{ inches}}{1 \text{ inch}} = \frac{1}{84480}.$$

From this a scale of yards is constructed as above (2).

4. *To construct a graphical scale from a scale expressed in unfamiliar units.* There remains one more problem, which occurs when there is a scale on the map in words and figures, but it is expressed in unfamiliar units, such as the meter ($= 39.37$ inches), strides of a man or horse, rate of travel of column, etc. If a noncommissioned officer should come into possession of such a map, it would be impossible for him to have a correct idea of the distances on the map. If the scale were in inches to miles or yards, he could estimate the distance between any two points on the map to be so many inches and at once know the corresponding distance on the ground in miles or yards. But suppose the scale found on the map to be one inch $= 100$ strides (ground), then estimates could not be intelligently made by one unfamiliar with the length of the stride used. However, suppose the stride was 60 inches long; we would then have this: Since 1 stride $= 60$ inches, 100 strides $= 6,000$ inches. But according to our supposition, 1 inch on the map $= 100$ strides on the ground; hence 1 inch on the map $= 6,000$ inches on the ground, and we have as our R. F.,

$$\frac{1 \text{ inch (map)}}{6,000 \text{ inches (ground)}} = \frac{1}{6000}.$$

A graphical scale can now be constructed as in (2).

Problems in Scales.

The following problems should be solved to become familiar with the construction of scales:

Problem No. 1. The R. F. of a map is $\frac{1}{1000}$. Required: 1. The distance in miles shown by one inch on the map; 2. To construct a graphical scale of yards; also one to read miles.

Problem No. 2. A map has a graphical scale on which 1.5 inches reads 500 strides. 1. What is the R. F. of the map? 2. How many miles are represented by 1 inch?

Problem No. 3. The Leavenworth map in back of this book has a graphical scale and a measured distance of 1.25 inches reads 1,100 yards. Required: 1. The R. F. of the map; 2. Number of miles shown by 1 inch on the map.

Problem No. 4. 1. Construct a scale to read yards for a map of R. F. $= \frac{1}{21120}$. 2. How many inches represent 1 mile?

26. Scaling Distances from a Map. There are four methods of scaling distances from maps:

1st. Apply a piece of straight edged paper to the distance between any two points, A and B, for instance, and mark the distance on the paper.

Now, apply the paper to the graphical scale, Figure 2, page 3, and read the number of yards on the main scale and add the number indicated on the extension. For example: $600 + 75 = 675$ yards.

2nd. By taking the distance off with a pair of dividers and applying the dividers thus set to the graphical scale, the distance is read.

3rd. By use of an instrument called a Map Measurer, Figure 11, set the hand on the face to read zero, roll the small wheel over the distance; now roll the wheel in an opposite direction along the graphical scale, noting the number of yards passed over. Or, having rolled over the distance, note the number of inches on the dial and multiply this by the number of miles or other units per inch. A map measurer is valuable for use in solving map problems in patrolling, advance guard, outpost, etc.



Figure 11.

4th. Apply a scale of inches to the line to be measured, and multiply this distance by the number of miles per inch shown by the map.

Having learned how to take off distances on the map, the next step in *Map Reading* is to determine differences of elevation.

27. Method of Representing Differences of Elevation. Since maps are representations on paper of ground which has size not only in a horizontal (level) but in a vertical (up and down) direction, it is necessary to have some means of rapidly determining elevations. This is accomplished in one of three ways:

1st. By means of *Contours*. A contour-line is the line in which a horizontal (level) plane cuts the surface of the ground. It may also be said that a contour-line is a line that joins points on the surface of the earth, which are the same height—that is, which are in the same level plane. The projection of a contour-line on a horizontal surface (a map) is called a *contour*. Elevations and depressions may, therefore, be represented on

maps by imagining the surface of the ground being cut by a number of horizontal planes that are *the same distance apart*, and then projecting (or shooting) on a horizontal plane the lines so cut on the earth's surface.

(Note: Read over paragraph 12, page 6, before studying what follows.)

28. Map Distances. The horizontal distance between contours on a map (called Map Distance, or M. D.) is proportional to the slope of the ground represented—that is to say, the greater the slope of the ground, the less is the horizontal distance between the contours; the less the slope of the ground represented, the greater is the horizontal distance between the contours.

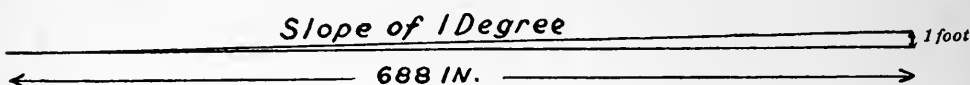


Figure 12.

Slope (degrees)	Rise (feet)	Horizontal Distance (inches)
1 deg.	1	688
2 deg.	1	$\frac{688}{2} = 344$
3 deg.	1	$\frac{688}{3} = 229$
4 deg.	1	$\frac{688}{4} = 172$
5 deg.	1	$\frac{688}{5} = 138$

Figure 13.

It is a fact that 688 inches horizontally on a 1 degree slope gives a vertical rise of one foot; 1376 inches, two feet, 2064 inches, three feet; etc., from which we see that on a slope of 1 degree, 688 inches multiplied by vertical rises of 1 foot, 2 feet, 3 feet, etc., gives us the corresponding horizontal distance in inches. For example, if the contour interval (Vertical Interval, V. I.) of a map is 10 feet, then 688 inches x 10 equals 6880 inches, gives the horizontal ground distance corresponding to a rise

of 10 feet on a 1 degree slope. To reduce this horizontal ground distance to horizontal map distance, we would, for example, proceed as follows:

Let us assume the R. F. to be 1/15840—that is to say, 15,840 inches on the ground equals 1 inch on the map, consequently, 6880 inches on the ground equals 6880/15840, equals .44 inch on the map. And in the case of 2 degrees, 3 degrees, etc., we would have:

$$\text{M. D. for } 2^{\circ} = \frac{6880}{15840 \times 2} = .22 \text{ inch};$$

$$\text{M. D. for } 3^{\circ} = \frac{6880}{15840 \times 3} = .15 \text{ inch, etc.}$$

From the above, we have this rule:

To construct a scale of M. D. for a map, multiply 688 by the contour interval (in feet) and the R. F. of the map, and divide the results by 1, 2, 3, 4, etc., and then lay off these distances as shown in Figure 9, page 9.

FORMULA.

$$\text{M. D. (inches)} = \frac{688 \times \text{V. I. (feet)} \times \text{R. F.}}{\text{Degrees (1, 2, 3, 4, etc.)}}$$

29. Slopes. Slopes are usually given in one of three ways: 1st, in degrees; 2nd in percentages; 3rd, in gradients (grades).

1st. A one degree slope means that the angle between the horizontal and the given line is 1 degree (1°). See Figure 12, page 18.

2d. A slope is said to be 1, 2, 3, etc., per cent, when 100 units horizontally correspond to a rise of 1, 2, 3, etc., units vertically.

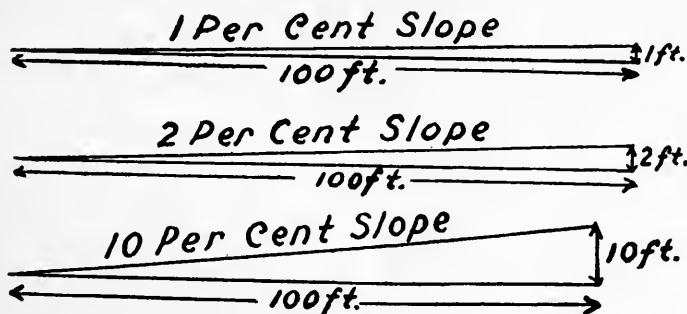


Figure 14.

3d. A slope is said to be one on one ($\frac{1}{1}$), two on three ($\frac{2}{3}$), etc., when one unit horizontal corresponds to 1 vertical; three horizontal correspond

to two vertical, etc. The numerator usually refers to the vertical distance, and the denominator to the horizontal distance.

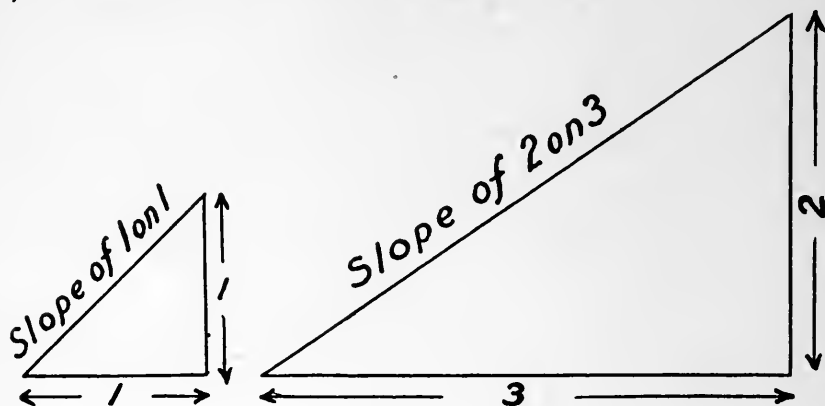


Figure 15.

Degrees of slope are usually used in military matters; percentages are often used for roads, almost always of railroads; gradients are used of steep slopes, and usually of dimensions of trenches.

EFFECT OF SLOPE ON MOVEMENTS.

- 60 degrees or $\frac{3}{4}$ inaccessible for Infantry;
- 45 degrees or $\frac{1}{2}$ difficult for Infantry;
- 30 degrees or $\frac{1}{3}$ inaccessible for Cavalry;
- 15 degrees or $\frac{1}{4}$ inaccessible for Artillery;
- 5 degrees or $\frac{1}{8}$ accessible for wagons.

The *Normal System* of scales prescribed for U. S. Army field sketches is as follows: For road sketches, 3 inches = 1 mile, *Vertical Interval* between contours (V. I.) = 20 ft.; for position sketches, 6 inches = 1 mile, V. I. = 10 ft.; for fortification sketches, 12 inches = 1 mile, V. I. = 5 ft. On this system *any given length of M.D. corresponds to the same slope* on each of the scales. For instance, .15 inch between contours represents a 5° slope on the 3-inch, 6-inch and 12-inch maps of the Normal System. Figure 9, page 9, gives the normal scale of M. D.'s for slopes up to 8 degrees. A scale of M. D.'s is usually printed on the margin of maps, near the geographical scale.

Directions on Maps.

30. Having given the means used for determining horizontal distances and relative elevations represented on a map, the next step is the determination of horizontal directions. When these three facts (distance, height

and direction) are known of any point with respect to any other point, its position is then fully determined. For instance (see map in pocket at back of book, Pope Hill (*sm'*) is 800 yards from Grant Hill (*um'*), (using graphical scale), and it is 30 feet higher than Grant Hill, since it is on contour 870 and Grant Hill is on contour 840; Pope Hill is also due north of Grant Hill, that is, the north and south line through Grant Hill passes through Pope Hill. Therefore, the position of Pope Hill is fully determined with respect to Grant Hill.

The direction line from which other directions are measured is usually the true north and south line (known as the True Meridian) or the plane of the magnetic needle, called the *Magnetic Meridian*. These two lines do not usually have the same positions, because at all points of the earth's surface the true meridian is the straight line joining the observer's position and the North Pole of the earth, whereas the direction of the magnetic needle varies at different points of the earth, at some places pointing east of and at others west of, the True Pole. At the present time the angle which the magnetic needle (called *Magnetic Declination*) makes with the True Meridian, is at Fort Leavenworth, $8^{\circ} 23'$ east of north.

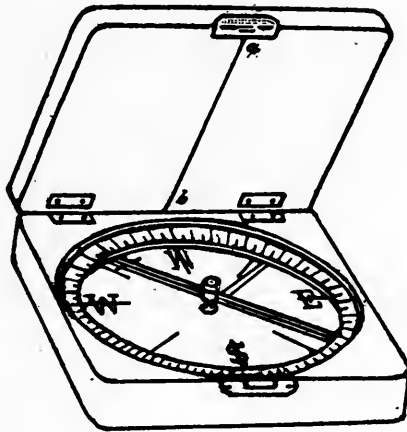


Figure 16.

It is important to know this relation because maps usually show the True Meridian and an observer is generally supplied with a magnetic compass. Figure 16 shows the usual type of *Box Compass*. It has 4 cardinal points, N, E, S and W marked, as well as a circle graduated in degrees from zero to 360° , clockwise around the circle. To read the magnetic angle (called magnetic azimuth) of any point from the observer's

position the north point of the compass circle is pointed toward the object and the angle indicated by the north end of the needle is read.

Orientation.

31. In order that directions on the map and on the ground shall correspond, it is necessary for the map to be *oriented*, that is, the true meridian of the map must lie in the same direction as the true meridian through the observer's position on the ground, which is only another way of saying that the lines that run north and south on the map must run in the same direction as the lines north and south on the ground. Every road, stream or other feature on the map will then run in the same direction as the road, stream or other feature itself on the ground, and all the objects shown on the map can be quickly identified and picked out on the ground.

Methods of Orientating a Map.

32. 1st. By magnetic needle: If the map has a magnetic meridian marked on it as is on the Leavenworth map (in pocket at back of book), place the sighting line, a-b, of the compass (Fig. 16) on the magnetic

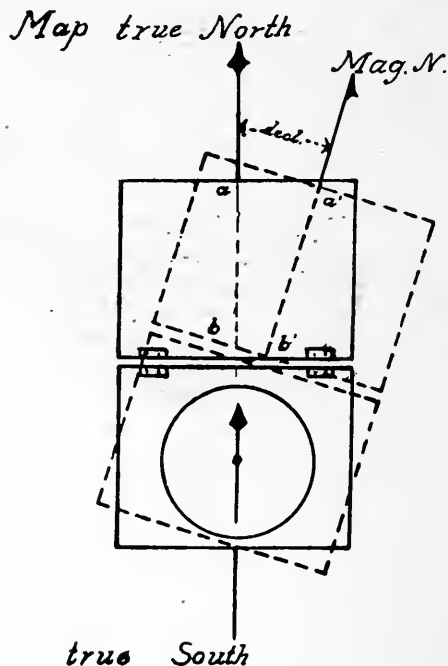


Figure 17.

meridian of the map and move the map around horizontally until the north end of the needle points toward the north of its circle, whereupon the map is oriented. If there is a true meridian on the map, but not a magnetic meridian, one may be constructed as follows, if the magnetic declination is known:

(Fig. 17): Place the true meridian of the map directly under the magnetic needle of the compass and then move the compass box until the needle reads an angle equal to the magnetic declination. A line in extension of the sighting line $a'-b'$ will be the magnetic meridian. If the magnetic declination of the observer's position is not more than 4° or 5° , the orientation will be given closely enough for ordinary purposes by taking the true and magnetic meridians to be identical.

2d. If neither the magnetic nor the true meridian is on the map, but the observer's position on the ground is known: Move the map horizontally until the direction of some definite point on the ground is the same as its direction on the map; the map is then oriented. For example, suppose you are standing on the ground at 8, $q k'$, (Fort Leavenworth Map), and can see the U. S. Penitentiary off to the south. Hold the map in front of you and face toward the U. S. Penitentiary, moving the map until the line joining 8 and the U. S. Penitentiary (on the map) lies in the same direction as the line joining those two points on the ground. The map is now oriented.

Having learned to orient a map and to locate his position on the map, the noncommissioned officer should then practice moving over the ground and at the same time keeping his map oriented and noting each ground feature on the map as it is passed. *This practice is of the greatest value in learning to read a map accurately and to estimate distances, directions and slopes correctly.*

True Meridian.

33. The position of the true meridian may be found as follows (Fig. 18): Point the hour hand of a watch toward the sun; the line joining the pivot and the point midway between the hour hand and XII on the dial, will point toward the south, that is to say, if the observer stands so as to face the sun and the XII on the dial, he will be looking south. To point the hour hand exactly at the sun, stick a pin as at (a) Fig. 18 and bring the hour hand into the shadow. At night, a line drawn toward the north star from the observer's position is approximately a true meridian.

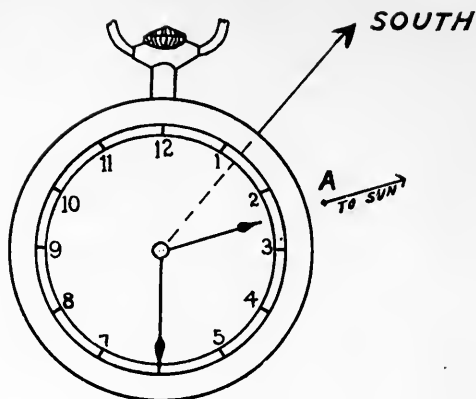


Figure 18.

The line joining the pointers of the Great Bear or Dipper, prolonged about six times its length passes nearly through the North Star, which can be recognized by its brilliancy.

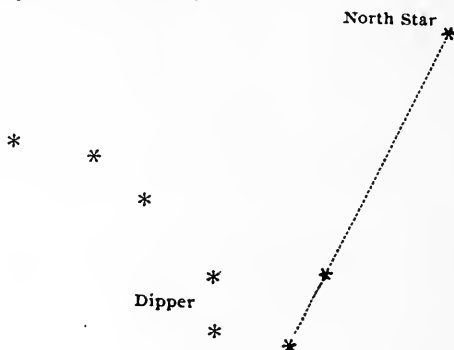


Figure 19.

Conventional Signs.

34. Rivers, lakes, mountains, forests, roads, houses, telegraph lines, etc., are represented on maps by symbols called *Conventional Signs*, in which an effort is made to imitate the general appearance of the objects as seen from a high point directly overhead. On account of this similarity of the object to its sign or symbol on the map, the noncommissioned officer will usually have no trouble in deciding at once the meaning of a new symbol. Fig. 21 on page 26 gives *Conventional Signs* used on military maps, and they should be thoroughly learned so that their meaning will be known at a glance.

There is a constant tendency to simplify the *Conventional Signs*, and

very often simply the outline of an object, such as a forest, cultivated ground, etc., is indicated with the name of the object printed within the outline. Thus:

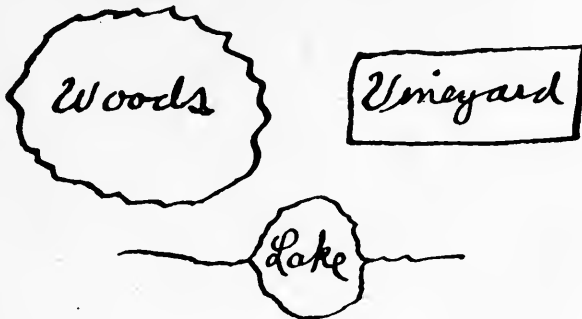


Figure 20.

Such means are used very frequently in rapid sketching, on account of the time that they save.

By reference to the map of Fort Leavenworth, the meaning of all its symbols is at once evident from the names printed thereon; for example, that of a city, woods, roads, streams, railroad, etc.; where no *Conventional Sign* is used on any area, it is to be understood that any growths thereon are not high enough to furnish any cover. As an exercise, pick out from the map the following conventional signs: Unimproved road, cemetery, railroad track, hedge, wire fence, orchard, streams, lake. The numbers on the various road crossings have no equivalent on the ground, but are placed on the maps to facilitate description of routes, etc. Often the numbers at road crossings on other maps denote the elevation of these points.

Visibility.

35. The problem of visibility is based on the relations of contours and map distances previously discussed, and includes such matters as the determination of whether a point can or can not be seen from another; whether a certain line of march is concealed from the enemy; whether a particular area is seen from a given point. For illustration, see *Visibility, Problem, page —*.

On account of the necessary inaccuracy of all maps it is impossible to determine exactly how much ground is visible from any given point—that is, if a correct reading of the map shows a certain point to be just barely visible, then it would be unsafe to say positively that on the ground this point could be seen or could not be seen. It is, however, of great im-

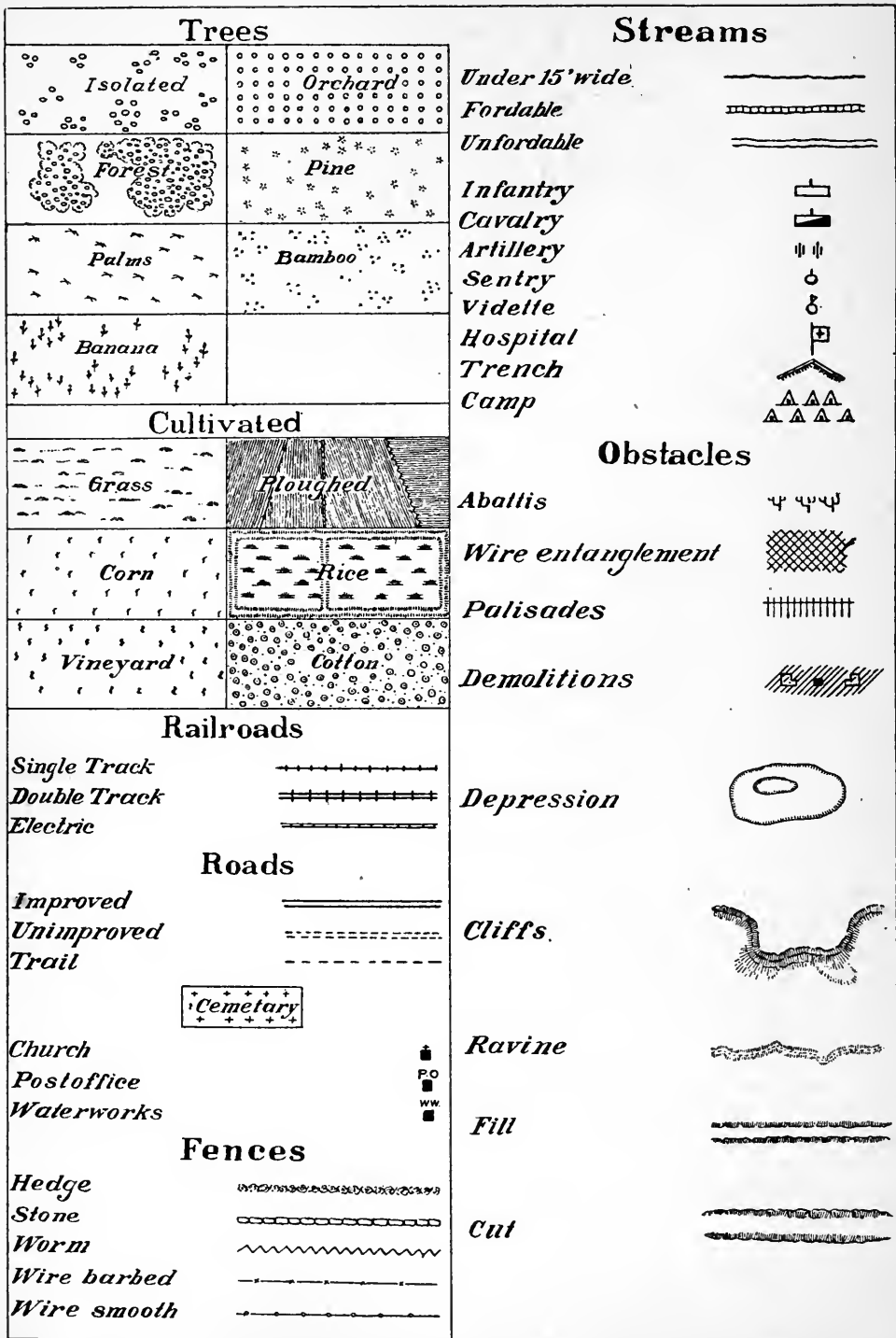


Figure 21.

portance for the noncommissioned officer to be able to determine at a glance, within about one contour interval, whether or not such and such a point is visible; or whether a given road is generally visible to a certain scout, etc. For this reason no effort is made to give an exact mathematical solution of problems in visibility further than would be useful in practical work with a map in the solution of map problems in patrolling.

In the solution of visibility problems, it is necessary that the noncom-

Figure 22.

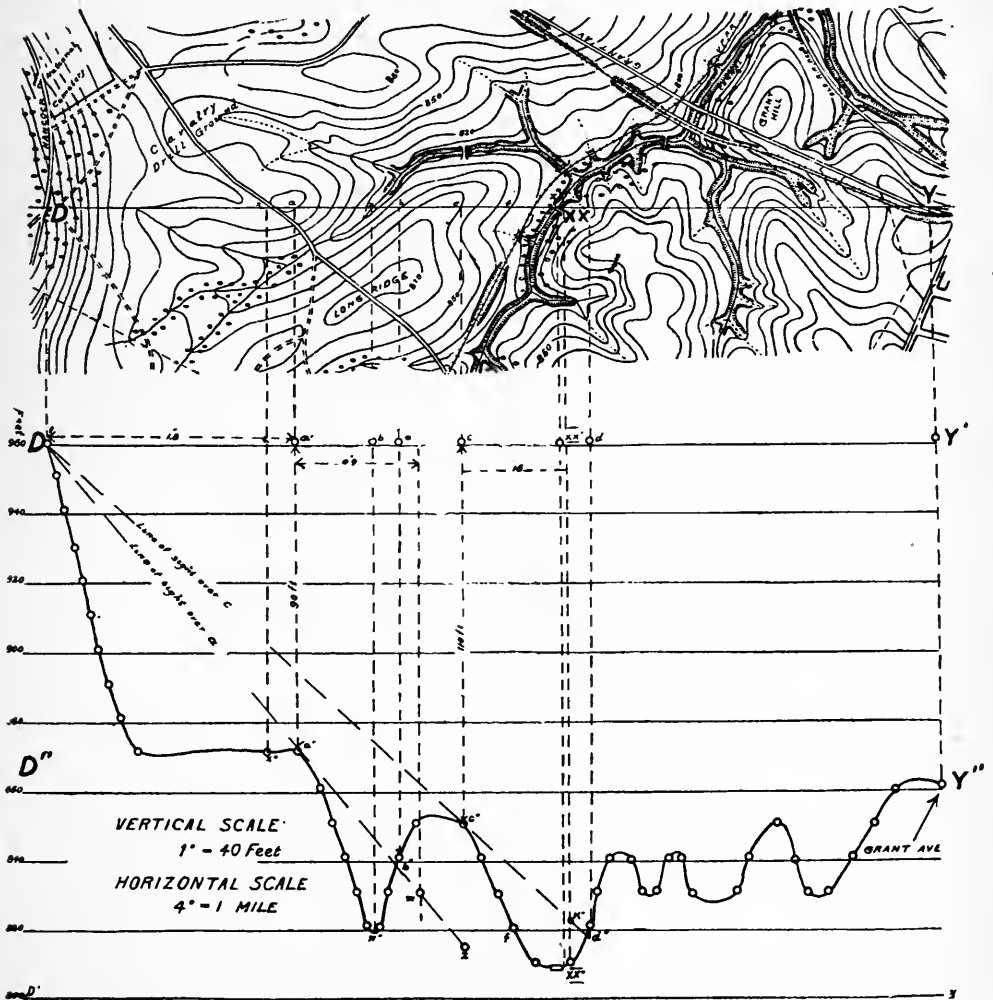


Figure 23.

missioned officer should thoroughly understand the meaning of *profiles* and their construction. A *profile* is the line supposed to be cut from the surface of the earth by an imaginary vertical (up and down) plane. (See Fig. 23.) The representation of this line to scale on a sheet of paper is also called a *profile*. Figure 23 shows a *profile* on the line D-y (Figure 22) in which the horizontal scale is the same as that of the map (Figure 22) and the vertical scale is 1 inch = 40 feet. It is customary to draw a *profile* with a greater vertical than horizontal scale in order to make the slopes on the *profile* appear to the eye as they exist on the ground. Consequently, always note especially the vertical scale in examining any *profile*; the horizontal scale is usually that of the map from which the *profile* is taken.

A profile is constructed as follows (Fig. 23): Draw a line D'—y' equal in length to D—y on the map. Lay off on this line from D' distances equal to the distances of the successive contours from D on the map. At each of these contour points erect a perpendicular equal to the elevation of this particular contour, as shown by the vertical scale (960, 940, 920, etc.) on the left. Join successively these verticals by a smooth curve, which is the required *profile*. Cross section paper with lines printed 1-10 inch apart horizontally and vertically simplifies the work of construction, by avoiding the necessity of laying off each individual distance.

Visibility Problem. To determine whether an observer with his eye at D can see the bridge at XX (Figure 22). By examining the profile it is seen that an observer, with his eye at D, looking along the line D-XX, can see the ground as far as (a); from (a) to (b) is hidden from view by the ridge at (a); (b) to (c) is visible; (c) to (d) is hidden by the ridge at (c). By thus drawing the profiles, the visibility of any point from a given point may be determined. The work may be much shortened by drawing the profile of only the observer's position (D) of the point in question, and of the probable obstructing points (a) and (c). It is evidently unnecessary to construct the profile from D to x, because the slope being concave shows that it does not form an obstruction.

The above method of determining visibility by means of a profile is valuable practice for learning slopes of ground, and the forms of the ground corresponding to different contour spacings.

Visibility of Areas.

36. To determine the area visible from a given point the same method is used. First mark off as invisible all areas hidden by woods, buildings,

high hills, and then test the doubtful points along lines such as D—XX, Figure 22. With practice the noncommissioned officer can soon decide by inspection all except the very close cases.

This method is a rapid approximation of the solution shown in the profile. In general it will not be practicable to determine the visibility of a point by this method closer than to say the line of sight pierces the ground between two adjoining contours.

CHAPTER II.

GENERAL COMMON SENSE PRINCIPLES OF APPLIED MINOR TACTICS.¹

1. To begin with, you want to bear in mind that there is nothing difficult, complicated or mysterious about **applied minor tactics**—it is just simply the application of plain, every-day common, horse sense—the whole thing consists in familiarizing yourself with certain general principles based on common sense and then applying them with common sense. *Whatever you do, don't make the mistake of following blindly rules that you have read in books.*

2. One of the ablest officers in the Army has recently given this definition of the Art of War:

One-fifth is learned from books;

One-fifth is common sense;

Three-fifths is knowing men and how to lead them.

The man who would be successful in business must understand men and apply certain general business principles with common sense; the man who would be a successful hunter must understand game and apply certain general hunting principles with common sense, and even the man who would be a successful fisherman must understand fish and apply certain general fishing principles with common sense. And so likewise the man who would lead other men successfully in battle must understand men and apply certain general tactical principles with common sense.

3. Of course, the only reason for the existence of an army is the possibility of war some day, and everything the soldier does—his drills, parades, target practice, guard duty, schools of instruction, etc.—has in view only one end: *The preparation of the soldier for the field of battle.*

4. While the responsibilities of noncommissioned officers in time of peace are important, in time of battle they are much more so; for *then their mistakes are paid for in human blood.*

What would you think of a pilot who was not capable of piloting a

¹ In the preparation of the first part of this chapter extracts, of words and of ideas, were made from a paper on Applied Minor Tactics read before the St. Louis Convention of the National Guard of the United States, in 1910, by Major J. F. Morrison, General Staff, U. S. Army.

boat trying to pilot a boat loaded with passengers; or, of an engineer who was not capable of running a locomotive trying to run a passenger train? You would, of course, think him criminal—but do you think he would be more criminal than the noncommissioned officer who is not capable of leading a squad in battle but who tries to do so, thereby sacrificing the lives of those under him?

You can, therefore, appreciate the importance, the necessity, of every noncommissioned officer doing everything that he possibly can during times of peace to qualify himself for his duties and responsibilities during times of war.

5. If we are going to have a good army we must have good regiments; to have good regiments we must have good battalions; to have good battalions we must have good companies; to have good companies we must have good squads; *to have good squads we must have good squad leaders—efficient, noncommissioned officers who know their business.*

6. As stated before, everything in the life of the soldier leads to the field of battle. And so is it that in the subject of **minor tactics** all instruction leads to the battle. First we have map problems; then terrain exercises; next the war game; after that maneuvers, and finally the battle.

7. Map Problems and Terrain Exercises. In the case of map problems you are given tactical problems to solve on a map; in the case of terrain exercises you are given problems to solve on the ground. (The word "Terrain," means earth, ground.) These are the simplest forms of tactical problems, as you have only one phase of the action, your information is always reliable and your imaginary soldiers always do just exactly what you want them to do.

8. War Game Next comes the war game, which consists of problems solved on maps, but you have an opponent who commands the enemy—the phases follow one another rapidly and the conditions change—your information is not so complete and reliable. However, your men being slips of cardboard or beads, they will, as in the case of your imaginary soldiers in the map problems and terrain exercises, go where you wish them to and do what you tell them to do—they can't misunderstand your instructions and go wrong—they don't straggle and get careless as real soldiers sometimes do.

Map problems, terrain exercises and war games are but aids to maneuvers—their practice makes the maneuvers better; for you thus learn the principles of tactics and in the simplest and quickest way.

9. Maneuvers. In the case of the maneuver the problem is the same as in the war game, except that you are dealing with real, live men whom you can not control perfectly, and there is, therefore, much greater chance for mistakes.

10. The Battle. A battle is only a maneuver to which is added great physical danger and excitement.

GENERAL RULES AND PRINCIPLES THAT MUST BE APPLIED IN MAP PROBLEMS, TERRAIN EXERCISES, THE WAR GAME AND MANEUVERS.

11. Everything that is done must conform in principle to what should be done in battle—otherwise your work is wasted—your time is thrown away.

In solving map problems and in the war game, always form in your mind a picture of the ground where the action is supposed to be taking place—imagine that you see the enemy, the various hills, streams, roads etc., that he is firing at you, etc.—and don't do anything that you would not be able to do if you were really on the ground and really in a fight.

12. Whether it be a corporal in command of a squad or a general in command of an army, in the solution of a tactical problem, whether it be a map problem, a terrain exercise, a war game, maneuver or battle, he will have to go through the same operation:

1st. Estimate the situation;

2nd. Decide what he will do;

3rd. Give the necessary orders to carry out his decision.

At first these three steps of the operation may appear difficult and laborious, but after a little practice the mind, which always works with rapidity in accustomed channels, performs them with astonishing quickness.

The child beginning the study of arithmetic, for example, is very slow in determining the sum of 7 and 8, but later the answer is announced almost at sight. The same is true in tactical problems—the process may be slow at first; but with a little practice it becomes quick and easy.

13. Estimating the Situation. This is simply "sizing up the situation," finding out what you're "up against," and is always the first thing to be done. It is most important, and in doing it the first step is to determine your MISSION—what you are to do, what you are to accomplish—the most important consideration in *any* military situation.

Consider next your own forces and that of the enemy—that is, his probable strength and how it compares with yours.

Consider the enemy's probable MISSION¹ and what he will probably do to accomplish it.

Consider the geography, of the country so far as it affects the problem—the valleys to cross, defiles to pass through, shortest road to follow, etc.

Now, consider the different courses open to you with the advantages and disadvantages of each.

You must, of course, in every case know what you're up against before you can decide intelligently what you're going to do.

In making your plan always bear in mind not only your own MISSION but also the GENERAL MISSION of the command of which you form a part, and this is what nine men out of ten forget to do.

14. You are now ready to come to a decision, which is nothing more or less than a clear, concise determination of *what* you're going to do and *how* you're going to do it.

15. **The Decision.** It is important that you should come to a clear and correct decision—that you do so promptly and then execute it vigorously.

The new Japanese Field Service Regulations tell us that there are two things above all that should be avoided—inaction and hesitation. "To act resolutely even in an erroneous manner is better than to remain inactive and irresolute"—that is to say, *do something*. Frederick the Great, expressed the same idea in fewer words: "*Don't haggle.*"

Having settled on a plan push it through—don't vacillate, don't waver. Make your plan simple. No other has much show. Complicated plans look well on paper, but in war they seldom work out. They require several people to do the right thing at the right time and this under conditions of excitement, danger and confusion, and as a result, they generally fail.

16. **The Order.** Having completed your estimate of the situation and formed your plan, you are now ready to give the orders necessary to carry it out.

You must first give your subordinates sufficient information of the situation and your plan, so that they may clearly understand their mission.

The better everyone understands the whole situation the better he can

¹ The word "*mission*" is used a great deal in this text. By your "*mission*" is meant your business, what you have been told to do, what you are trying to accomplish.

play his part. Unexpected things are always happening in war—a subordinate can act intelligently only if he knows and understands what his superior wants to do.

Always make your instructions definite and positive—vague instructions are sometimes worse than none.

Your order, your instructions, must be clear, concise and definite—everyone should know just exactly what he is to do.

A Few General Principles.

17. The man who hunts deer, moose, tigers and lions, is hunting big game, but the soldier operating in the enemy's territory is hunting bigger game—he's hunting for human beings—but you want to remember that the other fellow is out hunting for you, too; he's out "gunning" for you. So, don't fail to be on the alert, on the look out, *all the time*, if you do he'll "get the drop" on you. Remember what Frederick the Great said: "*It is pardonable to be defeated, but never to be taken by surprise.*"

18. Do not separate your force too much; if you do, you weaken yourself—you take the chance of being "defeated in detail"—that is, of one part being defeated after another. Remember the old saying: "*In union there is strength.*" Undue extension of your line (a mistake, by the way, very often made) is only a form of separation and is equally as bad.

19. While too much importance can not be attached to the proper use of cover, you must not forget that sometimes there are other considerations that outweigh the advantages of cover. Good sense alone can determine. A certain direction of attack, for instance, may afford excellent cover but it may be so situated as to mean ruin if defeated, as where it puts an impassable obstacle directly in your rear. And don't forget that you should always think in advance of what you would do in case of defeat.

20. What is it, after all, that gives victory, whether it be armies or only squads engaged? It's just simply inflicting on the enemy a loss which he will not stand *before he can do the same to you*. Now, what is this loss that he will not stand? What is the loss that will cause him to break? Well, it varies; it is subject to many conditions—different bodies of troops, like different timbers, have different breaking points. However, whatever it may be in any particular case it would soon come if we could shoot on the battlefield as we do on the target range, but we can not approximate it.

There are many causes tending to drag down our score on the battle-

field, one of the most potent being the effect of the enemy's fire. It is cited as a physiological fact that fear and great excitement cause the pupil of the eye to dilate and impair accuracy in vision and hence of shooting. It is well established that the effectiveness of the fire of one side is reduced proportionately to the effectiveness of that of the other.

21. Bear in mind then these two points—we must get the enemy's breaking point before he gets ours, and the more effective we make our fire the less effective will be his.

Expressed in another way—to win you must gain and keep a fire superiority.

This generally means more rifles in action, yet a fire badly controlled and directed, though great in volume, may be less effective than a smaller volume better handled.

The firing line, barring a few exceptional cases, then, should be as heavy as practicable consistent with the men's free use of their rifles.

This has been found to be about one man to the yard. In this way you get volume of fire and the companies do not cover so much ground that their commanders lose their power to direct and control.

22. If it becomes necessary to hold a line too long for the force available, it is then better to keep the men close together and leave gaps in the line. The men are so much better controlled, the fire better directed, the volume the same, and the gaps are closed by the cross fire of parties adjacent.

CHAPTER III.

**GENERAL PLAN OF INSTRUCTION IN MAP PROBLEMS FOR
NONCOMMISSIONED OFFICERS AND PRIVATES, BY
SQUAD, SECTION, PLATOON OR COMPANY.**

(The wall map to be used for this instruction can be obtained from the U. S. Infantry Association, Washington, D. C., at a cost of \$1.50.)

23. The noncommissioned officers and the privates of the squad, section, platoon or company are seated in front of the instructor, who, with pointer in hand, is standing near the map on the wall.

The instructor assumes certain situations and designates various non-commissioned officers to take charge of squads for the purpose of accomplishing certain missions; he places them in different situations, and then asks them what they would do. He, or the noncommissioned officer designated to perform certain missions, designates certain privates to carry messages, watch for signals, take the place of wounded noncommissioned officers, etc. For example, the instructor says: "The battalion is marching to Watertown (see Elementary Map in pocket at back of book) along this road (indicating road); our company forms the advance guard; we are now at this point (indicating point). Corporal Smith, take your squad and reconnoiter the woods on the right to see if you can find any trace of the enemy there, and rejoin the company as soon as you can. Corporal Jones, be on the lookout for any signals that Corporal Smith may make."

Corporal Smith then gives the command, "1. Forward, 2. MARCH," and such other commands as may be necessary.

Instructor. Now, when you reach this point (indicating point), what do you see?

(Corporal Smith holds his rifle horizontally above his head.)

Corporal Jones. Captain, Corporal Smith signals that he sees a small body of the enemy.

Corporal Smith. LIE DOWN. RANGE, 700. 1. READY; 2. AIM; 3. Squad; 4. FIRE. 1. Forward; Double time; 2. MARCH, etc.

The noncommissioned officers and the privates who are thus designated to do certain things must use their imagination as much as possible. They must look at the map and imagine that they are right on the ground, in

the hostile territory; they must imagine that they see the streams, hills, woods, roads, etc., represented on the map, *and they must not do anything that they could not do if in the hostile territory, with the assumed conditions actually existing.*

24. The general idea of this system of instruction is to make the non-commissioned officers and the privates **THINK**, to make them **USE COMMON SENSE AND INITIATIVE** in handling men in various situations, in getting out of difficulties. By thus putting men on their mettle in the presence of their comrades and making them bring into play their common sense and their powers of resourcefulness, it is comparatively easy to hold the attention of a whole squad, section, platoon or company, for those who are not actually taking part in the solution of a particular problem are curious to see how those who are taking part will answer different questions and do different things—how they will “pan out.”

25. Everything that is said, everything that is done, should, as far as practicable, be said and done just as it would be said and done in the field. The commands should be *actually given*, the messages *actually delivered*, the reports *actually made*, the orders and instructions *actually given*, the signals *actually made*, etc., just the same as they would be if the operations were real. Of course, sometimes it is not practicable to do this, and again at other times it would be advisable not to do so. If, for instance, in the solution of a problem there were a great many opportunities to give commands to fire, to make signals, to deliver messages, etc., and if these things were actually done every time, it would not only become tiresome but it would also delay the real work and instruction. Common sense must be used. Just bear this in mind: In the solution of map problems the non-commissioned officers and the privates are to be given *proper* and *sufficient* instruction in giving commands, making signals, sending and delivering messages, making reports, etc., the instructor using his common sense in deciding what is *proper and sufficient instruction*. In carrying out this feature of the instruction it would be done thus, for instance:

Instead of a platoon leader saying, “I would give the order for the platoon (two, three or four squads) to fire on them,” he would say, for instance, “I would then give the command, ‘AT LINE OF MEN. RANGE, 600. FIRE AT WILL,’ and would continue the firing as long as necessary.” Should the instructor then say, for instance, “Very well; the enemy’s fire has slackened; what will you do now?” The platoon leader would answer, for instance, “I would signal: 1. By squads from the right; 2. RUSH.”

Instead of saying, for instance, "I would advance my squad to the top of this hill at double time," the squad leader should say, "I would give the command: '1. Forward, double time; 2. MARCH,' and upon reaching the top of this hill, I would command, '1. Squad; 2. HALT,' cautioning the men to take advantage of cover."

Instead of saying, "I would signal back that we see the enemy in force," the squad leader should take a rifle and make the signal, and if a man has been designated to watch for signals, the man would say to the captain (or other person for whom he was watching for signals): "Captain, Corporal Smith has signaled that he sees the enemy in force."

Instead of saying, "I would send a message back that there are about twenty mounted men just in rear of the Jones' house; they are dismounted and their horses are being held by horseholders," say, "Smith, go back and tell the captain (or other person) there are about twenty mounted men just in rear of the Jones' house. They are dismounted and their horses are being held by horseholders." Pvt. Smith would then say to the captain (or other person), "Captain, Corporal Harris sends word there are about twenty men just in rear of the Jones' house. They are dismounted and their horses are being held by horseholders."

For problems exemplifying this system of instruction, see page 64.

26. The instruction may be varied a little by testing the squad leaders in their knowledge of map reading by asking, from time to time during the solution of the problem, such questions as these:

Captain: Corporal Smith, you are standing on Lone Hill (see Elementary Map), facing north. Tell me what you see?

Corporal: The hill slopes off steeply in front of me, about eighty feet down to the bottom land. A spur of the hill runs off on my right three-fourths of a mile to the north. Another runs off on my left the same distance to the west. Between these two spurs, down in front of me, is an almost level valley, extending about a mile to my right front, where a hill cuts off my view. To my left front it is level as far as I can see. A quarter of a mile in front of me is a big pond, down in the valley, and I can trace the course of a stream that drains the pond off to the northwest, by the trees along its bank. Just beyond the stream a railroad runs northwest along a fill and crosses the stream a mile and a half to the northwest, where I can see the roofs of a group of houses. A wagon road runs north across the valley, crossing the western spur of this hill 600 yards from Lone Hill. It is bordered by trees as far as the creek. Another road parallels the railroad, the two roads crossing near a large orchard a mile straight to my front.

Captain: Can you see the Chester Pike where the railroad crosses it?

Corporal: No, sir.

Captain: Why?

Corporal: Because the hill "62," about 800 yards from Lone Hill, is so high that it cuts off my view in that direction of everything closer to the spur "62" than the point in the Salem-Boling road, where the private lane runs off east to the Gray house.

Captain: Sergeant Jones, in which direction does the stream run that you see just south of the Twin Hills?

Sergeant: It runs south through York, because I can see that the northern end starts near the head of a valley and goes down into the open plain. Also it is indicated by a very narrow line near the Twin Hills which becomes gradually wider or heavier the further south it goes. Furthermore, the fact that three short branch streams are shown joining together and forming one, must naturally mean that the direction of flow is towards the one formed by the three.

Captain: Sergeant Harris, does the road from the Mason farm to the Welsh farm run up or down hill?

Sergeant: It does both, sir. It is almost level for the first half mile west of the Mason farm; then, as it crosses the contour marked 20 and a second marked 40, it runs up hill, rising to forty feet above the valley, 900 yards east of the Mason farm. Then, as it again crosses a contour marked 40 and a second marked 20, it goes down hill to the Welsh farm. That portion of the road between the points where it crosses the two contours marked 40, is the highest part on the road. It crosses this hill in a "saddle," for both north and south of this summit on the road are contours marked 60 and even higher.

Captain: Corporal Wallace, you are in Salem with a patrol with orders to go to Oxford. There is no one to tell you anything about this section of the country and you have never been there before. You have this map and a compass. What would you do?

Corporal: I would see from my map and by looking around me that Salem is situated at the crossing of two main roads. From the map I would see that one leads to Boling and the other was the one to take for Oxford. Also, I would see that the one to Boling started due north out of Salem and the other, the one I must follow, started due west out of Salem. Taking out my compass, I would see in what direction the north end of the needle pointed; the road running off in that direction would be the one to Boling, so I would start off west on the other.

Captain: Suppose you had no compass?

Corporal: I would look and see on which side of the base of the trees the moss grew. That side would be north. Or, in this case, I would probably not use a compass even if I had it; for, from the map, I know that the road I wish to start off on crosses a railroad track within sight of the crossroads and on the opposite side of the crossroads from the church shown on the map; also, that the Boling road is level as far as I could see on the ground, while the Chester Pike crosses the spur of Sandy Ridge, about a half mile out of the village.

Captain: Go ahead, Corporal, and explain how you would follow the proper route to Oxford.

Corporal: I would proceed west on the Chester Pike, knowing I would cross a good sized stream, on a stone bridge, about a mile and a half out of Salem; then I would pass a crossroad and find a swamp on my right, between the road and the stream. About a mile and a half from the crossroad I just mentioned, I would cross a railroad track and then I would know that at the fork of the roads one-quarter of a mile further on I must take the left fork. This road would take me straight into Oxford, about a mile and three-quarters beyond the fork.

Captain: Sergeant Washington, do the contours about a half mile north of the Maxey farm, on the Salem-Boling road, represent a hill or a depression?

Sergeant: They represent a hill, because the inner contour has a higher number, 42, than the outer, marked 20. They represent sort of a leg-of-mutton shaped hill about 42 feet higher than the surrounding low ground.

27. Variety and interest may be added to the instruction by assuming that the squad leader has been killed or wounded and then designate some private to command the squad; or that a man has been wounded in a certain part of the body and have a soldier actually apply his first aid packet; or that a soldier has fainted or been bitten by a rattlesnake and have a man *actually* render him first aid.

28. The privates may be given practical instruction in delivering messages by giving them messages in one room and having them deliver them to someone else in another room. It is a good plan to write out a number of messages in advance on slips of paper or on cards, placing them in unsealed envelopes. An officer or a noncommissioned officer in one room reads one of the messages to a soldier, then seals it in an envelope and gives it to the soldier to hand to the person in another room to whom he is to deliver the message. The latter checks the accuracy of the message by

means of the written message. Of course, this form of instruction should not be given during the solution of map problems by the men. (For model messages, see page 51.)

The same slips or cards may be used any number of times with different soldiers. *A soldier should never start on his way to deliver a message unless he understands thoroughly the message he is to deliver.*

CHAPTER IV.

THE SERVICE OF INFORMATION.

PATROLLING.

29. Patrols are small bodies of infantry or cavalry, from two men up to a company or troop, sent out from a command at any time to gain information of the enemy and of the country, to drive off small hostile bodies, to prevent them from observing the command or for other stated objects, such as to blow up a bridge, destroy a railroad track, communicate or keep in touch with friendly troops, etc. Patrols are named according to their objects, *reconnoitering*, *visiting*, *connecting*, *exploring*, *flanking patrols*, etc. These names are of no importance, however, because the patrol's orders in each case determine its duties.

30. The size of a patrol depends upon the mission it is to accomplish; if it is to gain information only, it should be as small as possible, allowing two men for each probable message to be sent (this permits you to send messages and still have a working patrol remaining); if it is to fight, it should be strong enough to defeat the probable enemy against it. For instance, a patrol of two men might be ordered to examine some high ground a few hundred yards off the road. On the other hand, during the recent war in Manchuria a Japanese patrol of 50 mounted men, to accomplish its *mission*, marched 1,160 miles in the enemy's country and was out for 62 days.

31. Patrol leaders: (a) *Patrol leaders*, usually noncommissioned officers, are selected for their endurance, keen eyesight, ability to think quickly and good military judgment. They should be able to read a map, make a sketch and send messages that are easily understood. Very important patrols are sometimes lead by officers. The leader should have a map, watch, field glass, compass, message blank and pencils.

(b) *The ability to lead a patrol correctly* without a number of detailed orders or instructions, is one of the highest and most valuable qualifications of a noncommissioned officer. Since a commander ordering out a patrol can only give general instructions as to what he desires, because he can not possibly foresee just what situations may arise, the patrol leader

will be forced to use his own judgment to decide on the proper course to pursue when something of importance suddenly occurs. He is in sole command on the spot and must make his decisions entirely on his own judgment and make them instantly. He has to bear in mind first of all *his mission*—what his commander wants him to do.

Possibly something may occur that should cause the patrol leader to undertake an entirely new *mission* and he must view the new situation from the standpoint of a higher commander.

(c) *More battles are lost through lack of information* about the enemy than from any other cause, and it is the patrols lead by noncommissioned officers who must gather almost all of this information. A battalion or squadron stands a very good chance for defeating a regiment if the battalion commander knows all about the size, position and movements of the regiment and the regimental commander knows but a little about the battalion; and this will all depend on how efficiently the patrols of the two forces are lead by the noncommissioned officers.

32. Patrols are usually sent out from the advance party of an advance guard, the rear party of a rear guard, the outguards (formerly called pickets) of an outpost, and the flank (extreme right or left) sections, companies or troops of a force in a fight, but they may be sent out from any part of a command.

The commander usually states how strong a patrol shall be.

33. Orders or Instructions—(a) The orders or instructions for a patrol must state clearly whenever possible:

1. Where the enemy is or is supposed to be.
2. Where friendly patrols or detachments are apt to be seen or encountered and what the plans are for the body from which the patrol is sent out.
3. What object the patrol is sent out to accomplish; what information is desired; what features are of especial importance; the general direction to be followed and how long to stay out in case the enemy is not met.
4. Where reports are to be sent.

(b) It often happens that, in the hurry and excitement of a sudden encounter or other situation, there is no time or opportunity to give a patrol leader anything but the briefest instructions, such as "Take three men, Corporal, and locate their (the enemy's) right flank." In such a case the patrol leader through his knowledge of the general principles of pa-

trolling, combined with the exercise of his common sense, must determine for himself just what his commander wishes him to do.

34. Inspection of a Patrol Before Departure. Whenever there is time and conditions permit, which most frequently is not the case, a patrol leader carefully inspects his men to see that they are in good physical condition; that they have the proper equipment, ammunition and rations; that their canteens are full, their horses (if mounted) are in good condition, not of a conspicuous color and not given to neighing, and that there is nothing about the equipment to rattle or glisten. The patrol leader should also see that the men have nothing with them (maps, orders, letters, newspapers, etc.) that, if captured, would give the enemy valuable information. This is a more important inspection than that regarding the condition of the equipment.

Whenever possible the men for a patrol should be selected for their trustworthiness, experience and knack of finding their way in a strange country.

35. Preparing a Patrol for the Start. The patrol leader having received his orders and having asked questions about anything he does not fully understand, makes his estimate of the situation (see Par. 13, page 32). He then selects the number of men he needs, if this has been left to him, inspects them and carefully explains to them the orders he has received and how he intends to carry out these orders, making sure the men understand the *mission* of the patrol. He names some prominent place along the route they are going to follow where every one will hasten if the patrol should become scattered.

For example: An infantry company has arrived at the town of York (see Elementary Map). Captain A, at 2 P. M., calls up Corporal B and three men of his squad.

Captain A: Corporal, hostile infantry is reported to be at Oxford. Nothing else has been heard of the enemy. The company remains here tonight. You will take these three men and reconnoiter about two miles north along this road (*indicates the Valley Pike*) for signs of a hostile advance in this direction.

Stay out until dusk.

Corporal C has been sent out that road (*points east along the County Road*).

Send messages here. Do you understand?

Corporal B: Yes, sir; I am to—(*here he practically repeats Captain A's*

orders, the three men listening). Is Corporal C to cover that hill (*points toward Twin Hills*)?

Captain A: No; you must cover that ground. Move out at once, Corporal. (*Corporal B quickly glances at the men and sees that they have their proper equipment.*)

Corporal B (to his men): You heard the Captain's orders. We will make for that hill (*points to Twin Hills*). Jones, I want you to go 150 yards in advance of me; Williams, follow me at 100 yards; Smith, you'll stay with me. Jones, you'll leave this road after crossing the creek and march on that clump of trees. I want both you and Williams to be on the alert and watch me every minute for signals. In case we become scattered, make for that hill (*points to Twin Hills*).

Private Jones: Corporal, shall I keep 150 yards from you or will you keep the correct distance?

Corporal B: You keep the correct distance from me. Forward, Jones.

Of course, the patrol leader makes all these preparations if he has time; but, as we have said before, there will be a great many occasions when he is required to start out so promptly that he will not have any time for the inspection described and he will have to make an estimate of the situation and give his detailed orders to the members of his patrol as they start off.

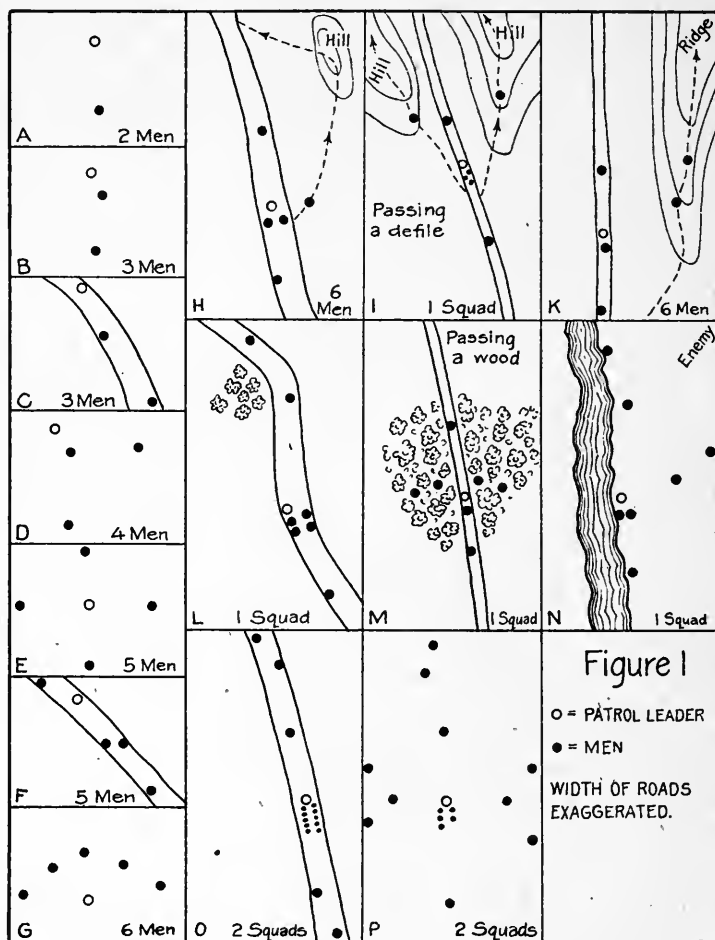
THE PRINCIPLES OF PATROLLING.

36. Paragraphs 37 to 80 describe the methods of leading a patrol—the points a patrol leader should fully understand. In other words, they state the **principles of patrolling**. When you first study this chapter, simply read over these **principles** without trying to memorize any of them. Whenever one of the principles is applied in the solution of any of the problems on patrolling given in this book you will generally find the number of the paragraph which states that **principle** enclosed in brackets. Turn back and study the paragraph referred to until you thoroughly understand its meaning and you feel sure that you know how to apply that **principle** whenever the occasion might arise in actual patrolling. Try to impress its common sense meaning (never the mere words) on your mind, so that when a situation arises requiring the sort of action indicated in the **principle**, YOU WILL NOT FAIL TO RECOGNIZE IT.

37. **Formation of Patrols**—(a) Figure 1 gives some examples of various ways of forming patrols. These are merely examples for the purpose of giving a *general idea* of the arrangement of the men. In practice com-

mon sense must dictate to the patrol leader the best formation in each case.

(b) In very small patrols the leader is usually in advance where he can easily lead the patrol, though not always (see E, Figure 1). The distance between men depends upon the character of the country and the situation. In L, Figure 1, it might be anywhere from 150 to 400 yards



from the leading man to the last, the distance being greater in level or open country. Some such formation as G, Figure 1, could be used in going through high brush, woods, or over very open country.

(c) The men must be so arranged that each man will be within signaling distance of some member of the patrol and the escape of at least one man, in case of surprise, is certain.

It must be remembered that the patrol may have to march a long dis-

tance before it is expected that the enemy will be encountered, or it may have a *mission* that requires it to hurry to some distant point through very dangerous country. In such cases the patrol will probably have to follow the road in order to make the necessary speed, and it will not be possible for flankers to keep up this rate marching off the road. The formation in such cases would be something like those shown in F, H and O.

Marching off the road is always slow work, so when rapidity is essential, some safe formation for road travel is necessary, as in F, L and O.

If, from the road the country for, say, $\frac{1}{2}$ mile on each side, can be seen, there is absolutely no use in sending out flankers a few hundred yards from the road. Use common sense.

38. Rate of March—(a) Patrols should advance quickly and quietly; be vigilant and make all practicable use of cover. If rapid marching is necessary to accomplish the *mission*, then little attention can be paid to cover.

(b) *Returning patrols*, near their own lines, march at a walk, unless pressed by the enemy. A patrol should not, if possible, return over its outgoing route, as the enemy may have observed it and be watching for its return.

39. Scattered Patrols. A scattered patrol reassembles at some point previously selected; if checked in one direction, it takes another; if cut off, it returns by a detour or forces its way through. As a last resort it scatters, so that at least one man may return with information.

Occasionally it is advisable for the leader to conceal his patrol and continue the reconnaissance with one or two men; in case of cavalry the leader and men thus detached should be well mounted.

40. Night Work. *Patrols far from their commands* or in contact with the enemy, often remain out over night. In such cases they seek a place of concealment unknown to the inhabitants, proceeding thereto after night-fall or under cover. Opportunities for watering, feeding and rest must not be neglected, for there is no assurance that further opportunities will present themselves. When necessary the leader provides for subsistence by demand or purchase.

41. Civilians. In questioning civilians care must be taken not to disclose information that may be of value to the enemy. Strangers must not be allowed to go ahead of the patrol as they might give the enemy notice of its approach. Patrol leaders are authorized to seize telegrams and mail

matter, and to arrest individuals, reporting the facts as soon as possible.

42. Patrol Fighting—(a) *A patrol sent out for information* never fights unless it can only get its information by fighting or is forced to fight in order to escape. *This principle is the one most frequently violated by patrol leaders*, particularly in peace maneuvers. They forget their *mission*—the thing their commander sent them out to do—and begin fighting, thus doing harm and accomplishing no important results.

(b) *A patrol sent out to drive off hostile detachments* has to fight to accomplish its mission. Sometimes a patrol has orders both to gain information and to drive back hostile patrols. In this case it may be proper to avoid a fight at one moment and to seek a fight at another. The patrol leader must always *think of his mission* when deciding on the proper course to follow, and then use common sense.

43. Signals—(a) In addition to the signals prescribed by the Infantry Drill Regulations (Par. 43, p. 18, Infantry Drill Regulations), the following should be clearly understood by members of a patrol:

Enemy in sight in small numbers: Hold the rifle above the head horizontally.

Enemy in force: Same as preceding, raising and lowering the rifle several times.

Take cover: A downward motion of the hand.

(b) Other signals may be agreed upon before starting, but they must be simple and familiar to the men; complicated signals must be avoided. Signals must be used cautiously, so as not to convey information to the enemy.

The patrol leader should see that all his men thoroughly understand that whenever they are away from the center of the patrol they must look to the nearest man for signals at least once every minute. *It should never be necessary for the patrol leader to call to a man in order to get his attention.* All movements of men at a distance should be regulated by signals and the men should constantly be on the lookout for these signals.

44. Messages—(a) The most skillful patrol leading is useless unless the leader fully understands *when* to send a message and *how* to write it.

(b) *A message, whether written or verbal*, should be short and clear, resembling a telegram. If it is a long account it will take too much time to write, be easily misunderstood, and if verbal, the messenger will usually forget parts of it and confuse the remainder.

(c) *Always state when and where* things are seen or reported. If haste is required, do not use up valuable moments writing down the day of the month, the hour the message is written, etc. These data are essential as a matter of future record for formal telegrams and should be put in patrol messages only when time is abundant, but never slight the essential points of information that will give valuable help to your chief. Always try to put yourself in his place—not seeing what you see and read your message—and then ask yourself, *What will he want to know?*

(d) The exact location of the enemy should be stated; whether deployed, marching or in camp, his strength, arm of the service (cavalry, infantry or artillery), and any other detail that you think would be valuable information for your chief. In giving your location do not refer to houses, streets, etc., that your chief in the rear has no knowledge of. Give your direction and distance from some point he knows of or, if you have a map like his, you can give your map location.

(e) *Be sure your message is accurate.* This does not mean that something told you should not be reported, but it should be reported, not as a fact, but as it is—a statement by somebody else. It is well to add any information about your informant, such as his apparent honesty, the probability of his having correct information, etc.—this may help your chief.

(f) *A message should always end with a short statement of what you are going to do next.* For example: "Will remain in observation," "Will continue north," "Will work around to their rear," etc. Time permitting, the bearer of a verbal message should always be required to repeat it before leaving.

(g) The following is a reproduction of a message blank used in field service. The instructions on the envelope are also given. A patrol leader will usually be furnished with a pad of these blanks:

U. S. ARMY FIELD MESSAGE		No.	Sent by	Time	Rec'd by	Time	Check
		(These spaces for Signal Operators only)					
Communicated by		(Name of sending detachment)					
Buzzer, Phone, Telegraph, Wireless, Lantern, Helio, Flag, Cyclist, Foot Messenger, Mounted Messenger.		<i>From</i> -----					
Underscore means used		(Location of sending detachment)					
		<i>At</i> -----					
		<i>Date</i> ----- <i>Hour</i> ----- <i>No.</i> -----					
<i>To</i> -----							

<i>Received</i> -----							

The heading "From" is filled in with the *name* of the detachment sending the information; as "Officer's Patrol, 7th Cav." Messages sent on the same day from the same source to the same person are numbered consecutively. The address is written briefly; thus, "Commanding Officer, Outpost, 1st Brigade." In the signature the writer's surname only and rank are given.

This blank is four and a half by eight inches, including the margin on the left for binding. The back is ruled in squares and provided with scales for use in making simple sketches explanatory of the message. It is issued by the Signal Corps in blocks of forty with duplicating sheets. The regulation envelope is three by five and one fourth inches and is printed as follows:

U. S. ARMY FIELD MESSAGE

To ----- *No.* -----
(For Signal operators only)

When sent ----- *No.* -----

Rate of speed -----

Name of Messenger -----

When and by whom rec'd -----

THIS ENVELOPE WILL BE RETURNED TO BEARER

MODEL MESSAGES.

1. *Verbal*. "Four hostile infantrymen one mile north of our camp, moving south. I will continue north."

2. *Verbal*. "About one hundred hostile infantrymen two miles north of our camp at two o'clock, marching south. Will observe them."

3. *Verbal*. "Long column of troops marching west in Sandy Creek Valley at two o'clock. Will report details later."

4. *Verbal*. "Just fired on by cavalry patrol near Baker's Pond. Will work to their rear."

5. *Written*.

Patrol from Support No. 2,
Lone Hill,
26 Mch. 11, 8-15 A. M., No. 1.

C. O.,

Support No. 2.

See hostile troop of cavalry halted at x-roads, one mile S. of our outguards. Nothing else in sight. Will remain here in observation.

James,
Corporal.

6. *Written* (very hurriedly).

Lone Hill, 8-30, No. 2.

C. O.,

Support No. 2.

Column of about 300 hostile cavalry trotting north towards hostile troop of cavalry now halted at x-roads one mile south of our outguards. Will remain here.

James,
Cpl.

7. *Written*.

Patrol from 5th Inf.,
S. E. corner Boling Woods,
3 Apl. 11, 2-10 P. M., No. 2.

Adjutant,

5th Inf., near Baker House.

Extreme right of hostile line ends at R. R. cut N. E. of BAKER'S POND. Entrenchments run S. from cut along crest of ridge. Line appears to be strongly held. Can see no troops in rear of line. Will reconnoiter their rear.

Smith,
Sergeant.

8. *Written* (from cavalry patrol far to front).

Patrol from Tr. B, 7th Cav.,
Boling,
14 June, 12, 10 A. M., No. 3.

To C. O.,

Tr. B, 7th Cav.,

S. on Chester Pike.

No traces of enemy up to this point. Telegraph operator here reports

wires running north from Boling were cut somewhere at 8-30 A. M. Inhabitants appear friendly. Will proceed north.

Jones,
Sergeant.

9. *Written* (from cavalry patrol far to front).

Patrol from Tr. B, 7th Cav.,
Oxford,

8 July, 12, 10-15 A. M., No. 2.

To C. O.,

1st Sq. 7th Cav.,

On Valley Pike, S. of York.

Bearer has canteen found in road here, marked "85 CAV.—III CORPS." Inhabitants say no enemy seen here. They appear hostile and unreliable. No telegraph operator or records remain here. Roads good macadam. Water and haystacks plentiful. Will move rapidly on towards CHESTER.

Lewis,
Sergeant.

Patrol from Support No. 3,

On Ry. $\frac{3}{4}$ mi. N. of County Road,

2 Aug. 12, 9-15 P. M., No. 1

C. O.,

Support No. 2,

Near Maxey House.

R. R. crosses creek here on 80-foot steel trestle. Hostile detachment is posted at N. end. Strength unknown. Creek 5 ft. deep by 60 ft. wide, with steep banks, 5 ft. high. Flows through meadow land. Scattered trees along banks. R. R. approaches each end of trestle on 10-foot fill. R. R. switch to N. E. 700 yds. S. of bridge. (See sketch on back.) I will cross creek to N. of bridge.

Brown,
Corporal.

45. *A message should be sent as soon as the enemy is first seen or reported.* Of course, if the enemy is actually known to be in the vicinity and his patrols have been seen, etc., you must by all means avoid wasting your men by sending them back with information about small hostile patrols or other things you know your chief is already aware of and did not specifically tell you to hunt for.

If you have properly determined in your own mind what your *mission* is then you will have no trouble in deciding when to send messages. For example, suppose your orders are "To reconnoiter along that ridge and determine if the enemy is present in strength," and you sight a patrol of eight men. You would waste no time or men sending back any message about the patrol, for *your mission* is to find out if strong bodies of the enemy are about. But suppose that while working under the above orders you located a hostile battalion of infantry—a large body of troops. In this

case you would surely send a detailed message as *your mission* is to determine if the enemy was present in strength.

Again, suppose that while moving towards the ridge indicated by your chief in his orders, you saw his force suddenly and heavily fired on from a new and apparently unexpected quarter, not a great distance from you, but not on the ridge referred to. *You know or believe none of your patrols are out in that neighborhood.* In this case you should realize instantly, without any order, that *your mission* had changed and you should hasten to discover the size and position of this new enemy and send the information back to your chief, first notifying him of your intended change of direction.

Never forget your mission in the excitement of leading your own little force.

46. Absence of the Enemy. It is frequently just as important to send a message to your chief that the enemy *is not* in a certain locality as it is to report his actual whereabouts. You must determine from your *mission* when this is the case. For example, if you were ordered "To patrol beyond that woods and see if any hostile columns are moving in that direction," and on reaching the far side of the woods you had a good view of the country for some distance beyond, it would be very important to send a message back telling your chief that you could see, say, one-half mile beyond the woods and there was no enemy in sight. This information would be of the greatest importance to him. He might feel free to move troops immediately from that vicinity to some more dangerous place. You would then continue your reconnaissance further to the front.

SUGGESTION FOR GAINING INFORMATION ABOUT THE ENEMY.

47. Enemy on the March—(a) The patrol should observe the march of the column from a concealed position that hostile patrols or flankers are not apt to search (avoid conspicuous places). Always try to discover if one hostile detachment is followed by another—if what can be seen appears to be an advance guard of a larger body not yet in view. The distance between the detachments, their relative size, etc., is always important.

(b) *Estimating Strength of Column.* The strength of a column may be estimated from the length of time it takes to pass a selected point. As infantry in column of squads occupies half a yard per man, cavalry one yard per horse and artillery in single file twenty yards per gun or caisson

(ammunition wagon), a selected point would be passed in one minute by 175 infantry; 110 cavalry (at a walk); 200 cavalry at a trot and 5 guns or caissons. If marching in columns of twos, take one-half of the above figures.

(c) *Dust*. The direction of march, strength and composition (infantry, cavalry or artillery) of a column can be closely estimated from the length and character of the cloud of dust that it makes. Dust from infantry hangs low; from cavalry it is higher, disperses more quickly, and, if the cavalry moves rapidly, the upper part of the cloud is thinner; from artillery and wagons, it is of unequal height and disconnected. The effect of the wind blowing the dust must be considered.

(d) *Trail of Column*. Evenly trodden ground indicates infantry; prints of horseshoes mean cavalry and deep and wide wheel tracks indicate artillery. If the trail is fresh, the column passed recently; if narrow, the troops felt secure and were marching in column of route: if broad they expected an action and were prepared to deploy. A retreating army makes a broad trail across fields, especially at the start.

Always remember that the smallest or most insignificant things, such as the number of a regiment or a discarded canteen or collar ornament, may give the most valuable information to a higher commander. For example, the markings on a discarded canteen or knapsack might prove to a general commanding an army that a certain hostile division, corps, or other force was in front of him when he thought it had not been sent into the field. The markings on the canteen would convey little or no meaning to the patrol leader, but if he realized his duty he would take care to report the facts. Cavalry patrols working far ahead of the foot troops should be most careful to observe and report on such details.

(e) *Reflection of weapons*. If brilliant, the troops are marching toward you, otherwise they are probably marching away from you.

48. Enemy in Position—(a) *If an outpost line*, the patrol locates the line of sentinels, their positions, the location and strength of the outguards and, as far as possible, all troops in rear. *The location of the flanks of the line*, whether in a strong or weak position, is of the utmost importance. Places where the line may be most easily penetrated should be searched for and the strength and routes of the hostile patrols observed.

As outposts are usually changed at dawn this is the best time to reconnoiter their positions.

(b) *A hostile line of battle* is usually hard to approach, but its extent,

where the *flanks rest* and whether or not other troops are in rear of these flanks, should be most carefully determined.

Information as to the flanks of any force, the character of the country on each flank, etc., is always of the greatest importance, because the flanks are the weakest portions of a line. In attacking an enemy an effort is almost always made to bring the heaviest fire or blow to bear on one of his flanks. Naturally all information about this most vulnerable part of an enemy is of great importance.

49. Prisoners. When a patrol is ordered to secure prisoners they should be questioned as soon as captured, while still excited and their replies can in a way be verified. Their answers should be written down (unknown to them) and sent back with them as a check on what they may say on second thought.

Prisoners should always be questioned as to the following points: What regiment, brigade, division, etc., they belong to; how long they have been in position, on the march, etc.; how much sickness in their organization; whether their rations are satisfactory; who commands their troops, etc. Always try to make the prisoners think the questions are asked out of mere curiosity.

50. Camp Noises. The rumble of vehicles, cracking of whips, neighing of horses, braying of mules and barking of dogs often indicate the arrival or departure of troops. If the noise remains in the same place and new fires are lighted, it is probable that reinforcements have arrived. If the noise grows more indistinct, the troops are probably withdrawing. If, added to this, the fires appear to be dying out, and the enemy seems to redouble the vigilance of the outposts, the indications of retreat are strong.

51. Abandoned Camps—(a) Indications are found in the remains of camp fires. They will show, by their degree of freshness, whether much or little time elapsed since the enemy left the place, and the quantity of cinders will give an indication of the length of time he occupied it. They will also furnish a means of estimating his force approximately, ten men being allowed to each fire.

(b) Other valuable indications in regard to the length of time the position was occupied and the time when it was abandoned may be found in the evidence of care or haste in the construction of huts or shelters, and in the freshness of straw, grain, dung or the entrails of slaughtered animals. Abandoned clothing, equipments or harness will give a clue to the

arms and regiments composing a retreating force. Dead horses lying about, broken weapons, discarded knapsacks, abandoned and broken-down wagons, etc., are indications of the fatigue and demoralization of the command. Bloody bandages lying about, and many fresh graves, are evidences that the enemy is heavily burdened with wounded or sick.

52. Flames and Smoke. If at night the flames of an enemy's camp fires disappear and reappear, something is moving between the observer and the fires. If smoke as well as flame is visible, the fires are very near. If the fires are very numerous and lighted successively, and if soon after being lighted they go out, it is probable that the enemy is preparing a retreat and trying to deceive us. If the fires burn brightly and clearly at a late hour, the enemy has probably gone, and has left a detachment to keep the fires burning. If, at an unusual time, much smoke is seen ascending from an enemy's camp, it is probable that he is engaged in cooking preparatory to moving off.

If lines of smoke are seen rising at several points along a railway line in the enemy's rear, it may be surmised that the railroad is being destroyed by burning the crossties, and that a retreat is planned.

53. Limits of Vision—(a) On a clear day a man with good vision can see:

At a distance of 9 to 12 miles, church spires and towers;

At a distance of 5 to 7 miles, windmills;

At a distance of 2 to 2½ miles, chimneys of light color;

At a distance of 2,000 yards, trunks of large trees;

At a distance of 1,000 yards, single posts;

At 500 yards the panes of glass may be distinguished in a window.

(b) *Troops are visible* at 2,000 yards, at which distance a mounted man looks like a mere speck; at 1,200 yards infantry can be distinguished from cavalry; at 1,000 yards a line of men looks like a broad belt; at 600 yards the files of a squad can be counted, and at 400 yards the movements of the arms and legs can be plainly seen.

(c) *The larger, brighter or better lighted an object is, the nearer it seems.* An object seems nearer when it has a dark background than when it has a light one, and closer to the observer when the air is clear than when it is raining, snowing, foggy or the atmosphere is filled with smoke. An object looks farther off when the observer is facing the sun than when he has his back to it. A smooth expanse of snow, grain fields or water makes distances seem shorter than they really are.

SUGGESTIONS FOR THE RECONNAISSANCE OF VARIOUS POSITIONS AND LOCALITIES.

54. Cross roads should be reconnoitered in each direction for a distance depending on how rapidly the patrol must continue on, how far from the main road the first turn or high point is, etc. The main body of the patrol usually remains halted near the crossroads, while flankers do the reconnoitering.

55. Heights. In reconnoitering a height, if the patrol is large enough to admit of detaching them, one or two men climb the slope on either flank, keeping in sight of the patrol, if possible. In any case, one man moves cautiously up the hill, followed by the others in the file at such distance that each keeps his predecessor in view.

56. Defiles. On approaching a defile, if time permits, the heights on either side are reconnoitered by flankers before the patrol passes through, in single file at double time, the distance being the same as in ascending a hill. The same method is adopted in reconnoitering a railroad cut or sunken road.

57. Bridges and Fords. At a bridge or ford, the front of the patrol is contracted so as to bring all the men to the passage. The leading patrolers cross first and reconnoiter the far side to prevent the possibility of the enemy surprising the main body of the patrol as it is crossing the bridge. The patrol then crosses rapidly, and takes up a proper formation. A bridge is first examined to see that it is safe and has not been tampered with by the enemy.

58. Woods. The patrol enters a wood in skirmishing order, the intervals being as great as may be consistent with mutual observation and support on the part of the members of the patrol. On arriving at the farther edge of the wood, the patrol remains concealed and carefully looks about before passing out to open ground. When there is such a growth of underbrush as to make this method impracticable, and it is necessary to enter a wood by a road, the road is reconnoitered as in case of defile, though not usually at double time.

59. Enclosures. In reconnoitering an enclosure, such as a garden, park or cemetery, the leading patrolers first examine the exterior, to make sure that the enemy is not concealed behind one of the faces of the enclosure. They then proceed to examine the interior. Great care is taken

in reconnoitering and entering an enclosure to avoid being caught in a confined or restricted space by the enemy.

60. Positions. In approaching a position, but one man advances (one is less liable to be detected than two or more), and he crawls cautiously toward the crest of the hill or edge of the wood or opening of the defile, while the others remain concealed in the rear until he signals them to advance.

61. Houses. When a house is approached by a patrol, it is first reconnoitered from a distance, and if nothing suspicious is seen, it is then approached by one or two men, the rest of the party remaining concealed in observation. If the patrol is large enough to admit of it, four men approach the house, so as to examine the front and back entrances at the same time. Only one man enters the door, the others remaining outside to give the alarm, should a party of the enemy be concealed in the house. The patrol does not remain in the vicinity of the house any longer than necessary, as information relative to its numbers and movements might be given to the enemy, if a hostile party should subsequently visit the place. Farmhouses are searched for newspapers and the inhabitants questioned.

62. Villages—(a) *In approaching a small village* one or two men are sent in to reconnoiter and one around each flank, but the main body does not enter until the scouts have reported. In small patrols of three to six men so much dispersion is not safe and only one section of the village can be reconnoitered at a time.

(b) *If the presence of the enemy is not apparent*, the patrol enters the village. A suitable formation would be in single file at proper distance, each man being on the opposite side of the street from his predecessor, thus presenting a more difficult target for hostile fire and enabling the men to watch all windows.

(c) *If the patrol is strong enough*, it seizes the post office, telegraph office and railroad stations, and secures all important papers, such as files of telegrams sent and received, instructions to postmasters, orders of town mayor, etc., that may be there. If the patrol is part of the advance guard, it seizes the mayor and postmaster of the place and turns them over to the commander of the van guard with the papers seized.

(d) *While searching a village* sentinels are placed at points of departure to prevent any of the inhabitants from leaving. Tall buildings and steeples are ascended and an extensive view of the surrounding country obtained.

(e) *At night* a village is more cautiously approached by a small party than by day. The patrol glides through back alleys, across gardens, etc., rather than along the main street. If there are no signs of the enemy, it makes inquiry. If no light is seen, and it seems imprudent to rouse any of the people, the patrol watches and captures one of the inhabitants, and gets from him such information as he may possess.

(f) *The best time for a patrol to approach a village* is at early dawn, when it is light enough to see, but before the inhabitants are up. It is dangerous in the extreme for a small patrol to enter a village unless it is certain that it is not occupied by the enemy, for the men could be shot down by fire from the windows, cellarways, etc., or entrapped and captured. As a rule large towns and cities are not entered by small patrols, but are watched from the outside, as a small force cannot effectively reconnoiter and protect itself in such a place.

FACTS WHICH SHOULD BE OBTAINED BY PATROLS IN REFERENCE TO CERTAIN OBJECTS.

63. Roads. Their direction, their nature (macadamized, corduroy, plank, dirt, etc.), their condition of repair, their grade, the nature of cross-roads, and the points where they leave the main roads; their borders (woods, hedges, fences or ditches), the places at which they pass through defiles, cross heights or rivers, and where they intersect railroads, their breadth (whether suitable for column of fours or platoons, etc.).

64. Railroads. Their direction, gauge, the number of tracks, stations and junctions, their grade, the length and height of the cuts, embankments and tunnels.

65. Bridges. Their position, their width and length, their construction (trestle, girder, etc.), material (wood, brick, stone or iron), the roads and approaches on each bank.

66. Rivers and Other Streams. Their direction, width and depth, the rapidity of the current, liability to sudden rises and the highest and lowest points reached by the water, as indicated by drift wood, etc., fords, the nature of the banks, kinds, position and number of islands at suitable points of passage, heights in the vicinity and their command over the banks.

67. Woods. Their situation, extent and shape; whether clear or con-

taining underbrush; the number and extent of "clearings" (open spaces); whether cut up by ravines or containing marshes, etc.; nature of roads passing through them.

68. Canals. Their direction, width and depth; condition of towpaths; locks and means of protecting or destroying them.

69. Telegraphs. Whether they follow railroads or common roads; stations, number of wires.

70. Villages. Their situation (on a height, in a valley or on a plain); nature of the surrounding country; construction of the houses, nature (straight or crooked) and width of streets; means of defense.

71. Defiles. Their direction; whether straight or crooked; whether heights on either side are accessible or inaccessible; nature of ground at each extremity; width (frontage of column that can pass through).

72. Ponds and Marshes. Means of crossing; defensive use that might be made of them as obstacles against enemy; whether the marshy grounds are practicable for any or all arms.

73. Springs and Rivulets. Nature of approaches; whether water is drinkable and abundant.

74. Valleys. Extent and nature; towns, villages, hamlets, streams, roads and paths therein; obstacles offered by or in the valley, to the movement of troops.

75. Heights. Whether slopes are easy or steep; whether good defensive positions are offered; whether plateau is wide or narrow; whether passages are easy or difficult; whether the ground is broken or smooth, wooded or clear.

SUGGESTIONS FOR PATROLS EMPLOYED IN EXECUTING DEMOLITION.

(Destruction or blocking of bridges, railroads, etc.)

76. Patrols never execute any demolition unless specifically ordered to do so. Demolition may be of two different characters: Temporary demolition, such as cutting telegraph wires in but a few places or merely burning the flooring of bridges, removing a few rails from a track, etc., and permanent demolition, such as cutting down an entire telegraph line, completely destroying bridges, blowing in tunnels, etc. Only temporary demolition will be dealt with in this book.

77. Telegraph Line. To temporarily disable telegraph lines, connect up different wires close to the glass insulators, wrap a wire around all

the wires and bury its ends in the ground (this grounds or short circuits the wire), or cut all the wires in one or two places.

78. Railroads. To temporarily disable railroads remove the fish plates (the plates that join the rails together at the ends) at each end of a short section of track, preferable upon an embankment, then have as many men as available raise the track on one side until the ties stand on end and turn the section of track so that it will fall down the embankment; or, cut out rails by a charge of dynamite or gun cotton placed against the web and covered up with mud or damp clay.. Eight to twelve ounces of explosive is sufficient. Or blow in the sides of deep cuts or blow down embankments. Bridges, culverts, tunnels, etc., are never destroyed except on a written order of the commander-in-chief.

79. Wagon Roads— (a) *Bridges* can be rendered temporarily useless by removing the flooring, or, in the case of steel bridges, by burning the flooring (if obtainable, pour tar or kerosene on flooring), particularly if there is not time to remove it.

Short culverts may sometimes be blown in.

A hastily constructed barricade across a bridge or in a cut of trees, wagons, etc., may be sufficient in some cases where only the temporary check of hostile cavalry or artillery is desired.

(b) *The road bed* may be blocked by digging trenches not less than thirty feet wide and six feet deep, but as this would take a great deal of time patrols would rarely be charged with such work.

80. Report on Return of Patrol. On returning the patrol leaders should make a short verbal or written report, almost always the former, briefly recounting the movements of the patrol, the information obtained of the enemy, a description of the country passed over and of friendly troops encountered. Of course, this is not practicable when the situation is changing rapidly and a returning patrol is immediately engaged in some new and pressing duty.

MODEL REPORTS OF PATROL LEADERS.

1. Verbal.

Patrol Leader (Corporal B): Sir, Corporal B reports back with his patrol.

Captain A: I received two messages from you, Corporal. What else did you discover?

Corporal B: That was a regiment of infantry, sir, with one battalion

thrown out as advance guard. The main body of two battalions went into bivouac at the cross roads and the advance guard formed an outpost line along the big creek two miles south of here.

Captain A: Give me an account of your movements.

Corporal B: We followed this main road south to the creek, where we avoided a mounted patrol moving north on the road at 1-45 P. M., and then reconnoitered the valley from a ridge west of the road. We followed the ridge south for half a mile to a point where we could see a road crossing the valley and the main road at right angles, three miles south of here. There we halted, and at 2-20 what seemed to be the point and advance party (about forty men) of an infantry advance guard appeared, marching north up this road, the head at the cross road. I then sent you message No. 1 by Private Brown.

In fifteen minutes three companies had appeared 600 yards in rear of the advance party, and I could see a heavy, low column of dust about one-half mile further to the rear. Message No. 2 was then sent in by Privates Baker and Johnson, and to avoid several hostile patrols, I drew off further to the northwest.

The advance guard then halted and established an outpost line along and south of the creek, two miles from here. The cloud of dust proved to be two more battalions and a wagon train. These two battalions went into bivouac on opposite sides of this road at the cross roads and sent out strong patrols east and west on the cross road. Five wagons went forward to the outpost battalion and the reserve built cook fires.

As Private Rush, here, was the only man I had left, we started back, sketching the valley, ridge and positions of the main body and outpost. Here is the sketch, sir. The fields are all cut crops or meadow.

We sighted two foot patrols from the outpost, moving north about a mile from here, one following the road and one further east.

I did not see any of our patrols.

That is all, sir.

2. Written.

Report of Sergeant Wm. James' Patrol of Five Men.

Support No. 1,

Outpost of 6th Inf., Near Dixon,

22 Aug. 12, 2-30 to 5 P. M.

The patrol followed the timber along the creek for one mile S. from our outguards and leaving the creek bottom moved $\frac{1}{2}$ mile S. E. to the wooded hill (about 800 ft. high), visible from our lines.

From this hill top the valley to the east (about one mile wide) could be fairly well observed. No signs of the enemy were seen and a message, No. 1, was sent back by Pvt. Russell.

A wagon road runs N. and S. through the valley, bordered by four or five farms with numerous orchards and cleared fields. Both slopes of the valley are heavily wooded.

The patrol then moved S. W., until it struck the macadam pike which runs N. and S., through our lines. Proceeding S. 400 yds. on this pike to a low hill a farmer, on foot, was met. Said he lived one mile further S.; was looking for some loose horses; that four hostile cavalymen, from the east, stopped at his farm at noon, drank some milk, took oats for their horses, inquired the way to Dixon and rode off in that direction within fifteen minutes. He said they were the first hostiles he had seen; that they told nothing about themselves, and they and their horses looked in good condition. Farmer appeared friendly and honest.

The patrol then returned to our lines following the pike about two miles. Road is in good condition, low hedges and barbed wire fences, stone culverts and no bridges in the two miles. Bordering country is open and gently rolling farming country and all crops are in. A sketch is attached to this report. None of our patrols was seen.

Respectfully submitted,

Wm. James,
Sergeant, Co. A, 6th Infy.

PROBLEMS IN PATROL LEADING AND PATROLLING.

In studying or solving tactical problems on a map you must remember that unless you carefully work out your own solution to the problem before looking at the given solution, you will practically make no progress.

It is best, if your time permits, to write out your solutions, and when you read over the given solutions, compare the solution of each point with what you thought of that same point when you were solving the problem, and consider why you did just what you did. Without this comparison much of the lasting benefit of the work is lost.

In some of these problems both the problem and solutions are presented in dialogue form so as to give company officers examples of the best method of conducting the indoor instruction of their men in minor tactics. It also gives an example of how to conduct a tactical walk out in the country, simply looking at the ground itself, instead of a map hanging on

the wall. The enlarged Elementary Map described at the top of page 36, is supposed to be used in this instruction as well as in the war games.

Problem No. 1 (Infantry).

The Elementary Map (scale 12 inches to the mile) being hung on the wall, about two sergeants and two squads of the company are seated in a semicircle facing it, and the captain is standing beside the map with a pointer (a barrack cleaning rod makes an excellent pointer).

Captain: We will suppose that our company has just reached the village of York. The enemy is reported to be in the vicinity of Boling and Oxford (he points out on the map all places as they are mentioned). We are in the enemy's country.

Corporal James, I call you up at 3 P. M. and give you these orders: "Nothing has been seen of the enemy yet. Our nearest troops are three miles south of here. Take four men from your squad and reconnoiter along this road (County Road) into the valley on the other side of that ridge over there (points to the ridge just beyond the cemetery), and see if you can discover anything about the enemy. Report back here by five o'clock. I am sending a patrol out the Valley Pike." Now, Corporal, state just what you would do.

Corporal James: I would go to my squad, fall in Privates Amos, Barlow, Sharp and Brown; see that they had full canteens; that their arms were all right; that they were not lame or sick and I would have them leave their blanket rolls, haversacks and entrenching tools with the company. (Par. 34, p. 44.)

I would then give these orders (Par. 33, p. 43): "We are ordered out on patrol duty. Nothing has been seen of the enemy yet. Our nearest troops are three miles south of here. We are ordered to reconnoiter along this road into the valley on the other side of that ridge, and see if we can discover anything about the enemy. Another patrol is going up the Valley Pike. Reports are to be sent here. In case we are scattered we will meet at that woods on the hill over there (indicates the clump of trees just west of Mills' farm).

I will go ahead. Amos, follow about fifty yards behind me. Barlow, you and Sharp keep about 100 yards behind Amos, and Brown will follow you at half that distance. All keep on the opposite side of the road from the man ahead of you." (Par. 37, p. 45.)

Captain: All right, Corporal, now describe what route you will follow.

Corporal James: The patrol will keep to the County Road until the crest of the ridge near the stone wall is reached, when what I see in the valley beyond will decide my route for me.

Captain: How about the woods west of the stone wall?

Corporal James: If I did not see anyone from our patrol on the Valley Pike reconnoitering there, I would give Barlow these orders just after we had examined the cemetery, when the patrol would have temporarily closed up somewhat: "Barlow, take Sharp and examine that little woods over there. Join us at the top of this hill." I would then wave to Brown to close up and would proceed to the hill top.

Captain: Barlow, what do you do?

Private Barlow: I would say, "Sharp, cut straight across for that woods. I will follow you." I would follow about 100 yards behind him. When he reached the edge of the woods I would signal him to halt by holding up my left hand. After I had closed up to about 50 yards I would say to him, "Go into the woods and keep me in sight." I would walk along the edge of the woods where I could see Sharp and the corporal's patrol on the road at the same time.

Captain: That is all right, Barlow. Corporal, you should have instructed Amos or Brown to keep a close watch on Barlow for signals.

Corporal James: I intended to watch him myself.

Captain: No, you would have enough to do keeping on the alert for what was ahead of you. Now describe how you lead the patrol to the top of the hill, by the stone wall

Corporal James: When I reached the crest I would hold up my hand for the patrol to halt and would cautiously advance and look ahead into the valley. If I saw nothing suspicious I would wave to the men to close up and say, "Amos, go to that high ground about 250 yards over there (indicates the end of the nose made by the 60-foot contour just north of the east end of the stone wall), and look around the country." I would keep Brown behind the crest, watching Barlow's movements.

Captain: Now, Corporal, Amos reaches the point you indicated and Barlow and Sharp join you. What do you do?

Corporal James: Can I see the Steel Bridge over Sandy Creek?

Captain: No, it is $\frac{3}{4}$ of a mile away and the trees along the road by Smith's hide it. You can see the cut in the road east of the bridge and the Smith house, but the cross roads are hidden by the trees bordering the roads. You see nothing suspicious. It is a clear, sunny afternoon. The roads are dusty and the trees in full foliage. The valley is principally made up of fields of cut hay, corn stubble and meadow land.

Corporal James: Does Private Amos give me any information?

Captain: No, he makes you no signals. You see him sitting behind a bush looking northwest, down the valley.

Corporal James: I would say, "Barlow, head straight across to where that line of trees meets the road (indicates the point where the lane from Mills' farm joins the Chester Pike). Sharp keep about 50 yards to my right rear." I would follow Barlow at 150 yards and when I had reached the bottom land I would wave to Amos to follow us.

Captain: How about Brown?

Corporal James: I had already given him his orders to follow as rear guard and he should do so without my telling him.

Captain: Amos, what do you do when you see the corporal wave to you?

Private Amos: I would go down the hill and join him.

Captain: No, you could do better than that. You are too far from the corporal for him to signal you to do much of anything except stay there or join him. You should join him, but you should not go straight down to him. You should head so as to strike the Mills' Lane about 100 yards east of the house and then go down the lane, first looking along the stone wall. In this way you save time in reconnoitering the ground near the Mills' farm and protect the patrol against being surprised by an enemy hidden by the line of trees, or the wall along the lane. You are not disobeying your orders but just using common sense in following them out and thinking about what the corporal is trying to do.

Now, Corporal, why didn't you go to the Smith house and find out if the people there had seen anything of the enemy?

Corporal James: You said we were in the enemy's country, sir, so I thought it best to avoid the inhabitants until I found I could not get information in any other way. I intended first to see if I could locate any enemy around here, and if not, to stop at houses on my return. In this way I would be gone before the people could send any information to the enemy about my patrol.

Captain: Barlow reaches the Chester Pike where the Mills' lane leaves it. You are about 150 yards in his rear. Sharp is 50 yards off to your right rear, Amos 100 yards to your left rear and Brown 50 yards behind you. Just as Barlow starts to climb over the barbed wire fence into the Chester Pike you see him drop down on the ground. He signals, "Enemy in sight." Tell me quickly what would you do?

Corporal James: I would wave my hand for all to lie down, and I would hasten forward, stooping over as I ran, until I was about 20 yards from

him, when I would crawl forward to the fence, close by him. Just before I reached him I would ask him what he saw.

Captain: He replies, "There are some hostile foot soldiers coming up this road."

Corporal James: I would crawl forward and look.

Captain: You see three or four men, about 500 yards north of you, coming up the Chester Pike. They are scattered out.

Corporal James: I would say, "Crawl into the lane, keep behind the stone wall, watch those fellows, and work your way to that farm" (indicates the Mills' farm). I would start towards the Mills' farm myself, under cover of the trees along the lane and would wave to the other men to move rapidly west, towards the hills.

Captain: Why didn't you try to hide near where you were and allow the hostile men to pass?

Corporal James: There does not seem to be any place to hide near there that a patrol would not probably examine.

Captain: What is your plan now?

Corporal James: I want to get my patrol up to that small woods near the Mills' farm, but I hardly expect to be able to get them up to that point without their being seen. In any event, I want them well back from the road where they can lie down and not be seen by the enemy when he passes.

Captain: You succeed in collecting your patrol in the woods without their being seen, and you see four foot soldiers in the road at the entrance to the land. One man starts up the lane, the others remaining on the road.

Corporal James: I say, "Brown, go through these woods and hurry straight across to York. You should be able to see the village from the other side of the woods. Report to the captain that a hostile patrol of four foot men is working south up the valley, two miles northeast of York. We will go further north. Repeat what I have told you." (Par. 44, p. 48.)

Captain: Why didn't you send this message before?

Corporal James: Because we were moving in the same direction that the messenger would have had to go, and, by waiting a very few minutes, I was able to tell whether it was a mere patrol or the point of an advance guard.

Captain: Do you think it correct to send a messenger back with news about a small patrol?

Corporal James: Ordinarily it would be wrong, but as nothing has been seen of the enemy until now, this first news is important because it proves

to the Captain that the enemy really is in this neighborhood, which it seems to me is a very important thing for him to know and what my *mission* required me to do. (Par. 45, p. 52.)

Captain: What are you going to do now, Corporal?

Corporal James: We have traveled about two miles and stopped frequently, so it must be about four o'clock. It is $1\frac{1}{3}$ miles back to York, where I should arrive about 5 o'clock. It would take me 25 minutes to go from here to York, so I have about 35 minutes left before 5 o'clock. This will permit me to go forward another mile and still be able to reach York on time. In is $\frac{2}{3}$ of a mile to the Mason farm, and if the hostile patrol appears to be going on, I will start for that point. Did anyone at the Mills' farm see us?

Captain: No, but tell me first why you do not go along this high ground that overlooks the valley?

Corporal James: Because our patrol that started out the Valley Pike is probably near Twin Hills and I want to cover other country. The orchard at Mason's would obstruct my view from the hills.

Captain: The hostile patrol goes on south. Describe briefly your next movements.

Corporal James: I lead my patrol over to Mason's and, concealing two of the men so that both roads and the house can be watched, I take one man and reconnoiter around the farm yard and go up to the house to question the inhabitants. (Par. 61, p. 58.)

Captain: You find one woman there who says some other soldiers, on foot, passed there a few minutes ago, marching south. She gives you no other information about the enemy or country.

Corporal James: I would send Amos over to see how deep and wide Sandy Creek is (Par. 66, p. 59). When he returned I would take the patrol over to Twin Hills, follow the ridge south to the stone wall on the County Road, watching the valley for signs of the hostile patrol, (and follow the road back to York; then make my report to the Captain, telling him where I had gone, all I had seen, including a description of the country. If I had not been hurried, I would have made a sketch of the valley. I can make a rough one after I get in. (Par. 80, p. 61.)

Captain: Suppose on your way back you saw hostile troops appearing on the County Road, marching west over Sandy Ridge. Would you stay out longer or would you consider that you should reach Oxford by 5 o'clock?

Corporal James: I would send a message back at once, and remain out long enough to find out the strength and probable intention of the new enemy.

Problem No. 2 (Cavalry).

Captain (to one platoon of his troop of cavalry): We will suppose that this troop has just (9 A. M.) arrived in Boling (Elementary Map) on a clear, dry, summer day. The enemy is supposed to be near Salem and we have seen several of his patrols this morning on our march south to Boling. Sergeant Allen, I call you up and give you these instructions: "Take Corporal Burt's squad (8 men) and reconnoiter south by this road (indicates the Boling-Morey house road) to Salem. I will take the troop straight south to Salem and you will join it there about 10:15. It is $4\frac{1}{2}$ miles to Salem. Start at once." (You have no map.)

Sergeant Allen: I would like to know just what the Captain wishes my patrol to do. (Par. 35, p. 44.)

Captain: We will suppose that this is one of the many occasions in actual campaign where things must be done quickly. Where there is no time for detailed orders. You know that the troop has been marching south towards Salem where the enemy is supposed to be. You also know we have seen several of his patrols. I have told you what the troop is going to do, and from all this you should be able to decide what *your mission* is in this case. We will, therefore, consider that there is no time to give you more detailed orders, and you have to decide for yourself. Of course, if you had failed to hear just what I said, then, in spite of the necessity for haste, I would repeat my instructions to you. (Par. 33-b, p. 43.)

Sergeant Allen: I would ride over to Corporal Burt's squad and lead it out of the column to the road leading to the Morey house, and say, "The troop is going on straight south to Salem, $4\frac{1}{2}$ miles away. This squad will reconnoiter south to Salem by this road, joining the troop there about 10:15. In case we become separated, make for Salem. Corporal, take Brown and form the point. I will follow with the squad about 300 yards in rear. Regulate your gait on me after you get your distance. Move out now at a trot." (Par. 33-a, p. 43.)

After Corporal Burt had gotten 150 yards out I would say, "Carter, move out as connecting file." I would then say, "Downs, you will follow about 150 yards behind us as rear guard." When Carter had gone 150 yards down the road I would order, "1. FORWARD; 2. TROT; 3. MARCH," and ride off at the head of the four remaining men (in column of twos). (Par. 37, p. 45.)

Captain: Sergeant, tell me briefly what is your estimate of the situation—that is, what sort of a proposition you have before you and how you have decided to handle it.

Sergeant Allen: As the enemy is supposed to be near Salem and we have already seen his patrols, I expect to encounter more patrols and may meet a strong body of the enemy, on my way to Salem. As I have no map, I cannot tell anything about the road, except that it is about $4\frac{1}{2}$ miles by the direct road the troop will follow, therefore my route will be somewhat longer. I have been given an hour and fifteen minutes in which to make the trip, so, if I move at a trot along the safer portions of the road, I will have time to proceed very slowly and cautiously along the dangerous portions. My patrol will be stretched out about 500 yards on the road, which should make it difficult for the enemy to surprise us and yet should permit my controlling the movements of the men. (Par. 37, p. 45.)

I consider that my mission is to start out on this road and find my way around to Salem in about an hour and, particularly, to get word across to the Captain on the other road of anything of importance about the enemy that I may learn.

Captain: Very well. When you reach the cut in the road across the south nose of Hill 38, your point has almost reached the Morey house. Do you make any change in your patrol?

Sergeant Allen: I order, "1. WALK; 2. MARCH," and watch to see if the connecting file observes the change of gait and comes to a walk.

Captain: Suppose he does not come to a walk?

Sergeant Allen: I would say, "Smith, gallop ahead and tell Carter to walk and to keep more on the alert."

Captain: Corporal Burt, you reach the road fork at Morey's. What do you do?

Corporal Burt: I say, "Brown, wait here until Carter is close enough to see which way you go and then trot up to me." I would walk on down the road.

Captain: Wouldn't you make any inspection of the Morey house?

Corporal Burt: Not unless I saw something suspicious from the road. I would expect the main body of the patrol to do that.

Captain: Don't you make any change on account of the woods you are passing?

Corporal Burt: No, sir. It has very heavy underbrush and we would lose valuable time trying to search through it. A large force of the enemy would hardly hide in such a place.

Captain: Sergeant Allen, you reach the road fork. What do you do?

Sergeant Allen: I would have two men go into the Morey house to question anyone they found there. I would order one of the other two men

to trot up (north) that road 200 yards and wait until I signaled to him to return. With the other man I would await the result of the inspection of the Morey house. Corporal Burt should have gone ahead without orders to the cut in the road across Long Ridge, leaving Brown half way between us. (Par. 54, p. 57; Par. 61, p. 58.)

Captain: You find no one at the Morey house.

Sergeant Allen: I would signal the man to the north to come in. I would then order two men to "find a gate in the fence and trot up on that hill (indicating Long Ridge), and look around the country and join me down this road" (Par. 37, p. 45). I would then start south at a walk, halting at the cut to await the result of the inspection of the country from the hill.

Captain: Foster, you and Lacey are the two men sent up on Long Ridge. When you reach the hill top you see four hostile cavalrymen trotting north on the Valley Pike, across the railroad track.

Private Foster: I signal like this (enemy in sight), and wait to see if they go on north (Par. 43, p. 48). Do I see anything else behind or ahead of them?

Captain: You see no other signs of the enemy on any road. Everything looks quiet. The hostile cavalrymen pass the Baker house and continue north.

Private Foster: I would then take Lacey, trot down the ridge to Sergeant Allen, keeping below the crest and report, "Sergeant, we saw four hostile mounted men trotting north on the road about three-quarters of a mile over there (pointing), and they kept on north, across that road (pointing to the Brown-Baker-Oxford road). There was nothing else in sight." I would then tell him what the country to the south looked like, if he wanted to know.

Captain: Sergeant Allen, what do you do now?

Sergeant Allen: I would continue toward the Brown house at a trot. I would send no message to you as you already know there are hostile patrols about and therefore this information would be of little or no importance to you. (Par. 45, p. 52.)

Captain: You arrive at Brown's house.

Sergeant Allen: I would send two men in to question the people and I would continue on at a walk. I would not send any one up the road towards Oxford as Foster has already seen that road.

Captain: You should have sent a man several hundred yards out the Farm Lane (Par. 54, p. 57). If he moved at a trot it would only have taken a very short time. Continue to describe your movements.

Sergeant Allen: I would halt at the railroad track until I saw my two men coming on from the Brown house. I would then direct the other two men who were with me to go through the first opening in the fence to the west and ride south along that ridge (62—Lone Hill—Twin Hills ridge) until I signaled them to rejoin. I would tell them to look out for our troop over to the east. If there were a great many fences I would not send them out until we were opposite the southern edge of that woods ahead of us. There I would send them to the high ground to look over the country and return at once.

Captain: There are a great many fences west of the road and practically none east of the road to Sandy Creek. Just as you arrive opposite the southern edge of those woods and are giving orders for the two men to ride up the hill, you hear firing in the direction of Bald Knob. In the road at the foot of the south slope of Bald Knob, where the trail to the quarry starts off, you can see quite a clump of horses. You see nothing to the west of your position or towards Mason's. What do you do?

Sergeant Allen: I signal "RALLY" to Carter and Downs. If there is a gate nearby I lead my men through it. If not, I have them cut or break an opening in the fence and ride towards the railroad fill at a fast trot, having one man gallop ahead as point.

When we reach the fill, the point having first looked beyond it, I order, "DISMOUNT. Lacey, hold the horses. 1. AS SKIRMISHERS ALONG THAT FILL, 2. MARCH." When Corporal Burt, Brown, Carter and Downs come up Lacey takes their horses and they join the line of skirmishers. Captain, what do I see from the fill?

Captain: There appear to be about twenty or thirty horses in the group. The firing seems to come from the cut in the road just north of the horses and from the clump of trees by the Quarry. You can also hear firing from a point further north on the road, apparently your troop replying to the fire from Bald Knob. You see nothing in the road south of the horses as far as Hill 42, which obstructs your view. What action do you take?

Sergeant Allen: I order, "AT THE FEET OF THOSE HORSES. RANGE, 850. CLIP FIRING."

Captain: What is your object in doing as you have done?

Sergeant Allen: I know the Captain intended to go to Salem with the troop. From the fact that he is replying to the hostile fire I judge he still wishes to push south. I was ordered to reconnoiter along this road, but now a situation has arisen where the troop is being prevented or delayed in doing what was desired and I am in what appears to be a very favorable

position from which to give assistance to the troop and enable them to push ahead. I am practically in rear of the enemy and within effective range of their lead horses. I therefore think *my mission* has at least temporarily changed and I should try and cause the twenty or thirty hostile troopers to draw off. (Par. 31-b, p. 42.) Besides, I think it is my business to find out what the strength of this enemy is and whether or not he has reinforcements coming up from Salem, and send this information to the Captain. From my position I can still watch the Chester Pike.

Captain: After you have emptied your clips you see the enemy running down out of the cut and from among the trees mount their horses and gallop south. What do you do?

Sergeant Allen: I would send Foster across the creek above the trestle (south of trestle), to ride across to that road (pointing towards the cut on Bald Hill) and tell the Captain, who is near there, that about thirty men were on the hill and they have galloped south, and that I am continuing towards Salem. I would have Foster repeat the message that I gave him. I would then trot back to the Chester Pike and south to Mason's, taking up our old formation.

Captain: You see nothing unusual at Mason's and continue south until you reach the cross roads by the Smith farm. Corporal Burt and Private Brown are near the stone bridge south of Smith's; Private Carter is half way between you and Corporal Burt; and Private Downs is 100 yards north of Smith's. You have three men with you. What do you do?

Sergeant Allen: What time is it now?

Captain: It is now 10:45 A. M.

Sergeant Allen: I would say, "Lacey, take Jackson and gallop as far as that cut in the road (points east) and see if you can locate the enemy or our troop in the valley beyond. I will wave my hat over my head when I want you to return." I would then say to Private Moore, "Gallop down to Corporal Burt and tell him to fall back in this direction 100 yards, and then you return here bringing the other two men with you." I would then await the result of Private Lacey's reconnaissance, sending Carter to the turn in the road 200 yards west of the cross roads.

Captain: Lacey, what do you do?

Private Lacey: I order Jackson, "Follow 75 yards behind me and watch for signals from Sergeant Allen," and I then gallop across the steel bridge and half way up the hill. I then move cautiously up to the cut and, if the fences permit, I ride up on the side of the cut, dismounting just before reaching the crest of the ridge, and walk forward until I can see into the valley beyond.

Captain: You see no signs of the enemy in the valley, but you see your own troop on the road by the Gibbs farm with a squad in advance in the road on Hill 42.

Private Lacey: I look towards Sergeant Allen to see if he is signaling. I make no signals.

Captain: What do you do, Sergeant?

Sergeant Allen: I wave my hat for Private Lacey to return. I wave to Private Downs to join me and when Private Lacey arrives I signal "ASSEMBLE" to Corporal Burt and then say, "Lacey, join Corporal Burt and tell him to follow me as rear guard. Martin, join Carter and tell him to trot west. We will follow. You stay with him." After he got started I would order, "Follow me. 1. TROT; 2. MARCH."

Captain: When Private Carter reaches the crest of the ridge about one-half mile west of Smith's he signals, "Enemy in sight in large numbers," and he remains in the road with Martin 50 yards in rear. (Par. 43, p. .)

Sergeant Allen: I order, "1. WALK; 2. MARCH. 1. SQUAD; 2. HALT," and gallop up to Private Carter, dismount just before reaching the crest, give my horse to Private Martin, and run forward.

Captain: Carter points out what appears to be a troop of cavalry standing in the road leading north out of York, just on the edge of the town. You see about four mounted men 200 yards out of York on your road, halted, and about the same number on the Valley Pike near where it crosses the first stream north of York. What do you do?

Sergeant Allen: I wait about three minutes to see if they are going to move.

Captain: They remain halted. The men at York appear to be dismounted.

Sergeant Allen: I write the following message:

Hill $\frac{1}{2}$ mile N. E. of York,
10 A. M.

Captain X:

A hostile troop of cavalry is standing in road at YORK (west of SALEM) with squads halted on N. and N. E. roads from YORK. Nothing else seen. Will remain in observation for the present.

Allen,
Sgt. (Pars. 44 and 45, pp. 48 and 52.)

I would give the message to Martin, who had previously brought my

horse up close in rear of the crest, and would say to him, "Take this message to the Captain, straight across to the road the troop is on, and turn south towards Salem if you do not see them at first. Take Lacey with you. Tell him what you have seen. He knows where the troop is." I would have Carter hold my horse, and *watch the remainder of the patrol for signals*, while I observed the enemy.

Captain: At the end of five minutes the hostile troop trots north on the Valley Pike, the patrol on your road rides across to the Valley Pike and follows the troop.

Sergeant Allen: I would wait until the troops had crossed the creek north of York and would then face my patrol east and trot to the cross roads at Smith's, turn south and continue to Salem, sending one man to ride up on Sandy Ridge, keeping the patrol in sight.

Captain: We have carried out the problem far enough. It furnishes a good example of the varying situations a patrol leader has to meet. Good judgment or common sense must be used in deciding on the proper course to follow. You must always think of what your chief is trying to do and then act in the way you think will best help him to accomplish his object. If you have carefully decided just what *mission* you have been given to accomplish, you cannot easily go wrong. In handling a mounted patrol you must remember that if the men become widely separated in strange country, or even in country they are fairly familiar with, they are most apt to lose all contact with each other or become lost themselves.

Problem No. 3 (Infantry).

Captain (to one platoon of his company): We will suppose it is about half an hour before dawn. One platoon of the company is deployed as skirmishers, facing north, in the cut where the County Road crosses Sandy Ridge. It is the extreme right of a line of battle extending west along the line of the County Road. The fight has not commenced. This platoon is resting in a wheat field between the railroad and the foot of the slope of Sandy Ridge, 200 yards south of the County Road. Sergeant Allen, I call you up and give you these instructions: "The enemy's line is off in that direction (pointing northwest). Take six men and work north along the railroad until it is light enough to see; then locate the hostile line and keep me informed of their movements. I will be in this vicinity. You have a compass. Start at once." Describe briefly the formation of your patrol while it is moving in the dark.

Sergeant Allen: One man will lead. A second man will follow about 15 yards in rear of him. I will follow the second man at the same distance with three more men, and the last man will be about 20 yards in rear of me. All will have bayonets fixed, loaded and pieces locked. One short, low whistle will mean, "Halt," two short whistles will mean, "Forward," and the word "Sandy" will be the countersign by which we can identify each other.

Captain: Very well. We will suppose that you reach the steel trestle over Sandy Creek just at dawn and have met no opposition and heard nothing of the enemy. On either side of Sandy Creek are fields of standing corn about six feet tall. In the present dim light you can only see a few hundred yards off.

Sergeant Allen: The patrol being halted I would walk forward to the leading man (Brown) and say, "Brown, take Carter and form the point for the patrol, continuing along this railroad. We will follow about 150 yards in rear." I would then rejoin the main body of the patrol and order the man in rear to follow about 75 yards in rear of us. When the point had gained its distance I would move forward with the main body, ordering one man to move along the creek bank (west bank), keeping abreast of us until I signaled to him to come in.

Captain: Just as you reach the northern end of the railroad fill your point halts and you detect some movement in the road to the west of you. It is rapidly growing lighter.

Sergeant Allen: I would move the main body by the left flank into the corn, signaling to the man following the creek to rejoin, and for the rear guard to move off the track also. I would expect Brown to do the same, even before he saw what we had done. I would then close up on the point until I could see it and, halting all the patrol, I would order Foster to take Lacey and work over towards the road to see what is there and to report back to me immediately.

Captain: In a few minutes Foster returns and reports, "The enemy is moving south in the road and in the field beyond, in line of squads or sections. A hostile patrol is moving southeast across the field behind us. We were not seen."

(Note: This situation could well have been led up to by requiring Private Foster to explain how he conducted his reconnaissance and having him formulate his report on the situation as given.)

Sergeant Allen: I would then work my patrol closer to the road, keeping Foster out on that flank, and prepare to follow south in rear of the hostile movement.

Captain: The information you have gained is so important that you should have sent a man back to me with a verbal message, particularly as you are in a very dangerous position, and may not be able to send a message later. While you have not definitely located the left of the enemy's line, you have apparently discovered what appears to be a movement of troops forward to form the left of the attacking line. Your action in turning south to follow the troops just reported, is proper, as you now know you are partly in rear of the hostile movement and must go south to locate the hostile flank that your *mission* requires you to report on. (Par. 48, p. 54.)

You men must picture in your minds the appearance of the country the Sergeant is operating through. His patrol is now in a field of high standing corn. Unless you are looking down between the regular rows of corn you can only see a few yards ahead of you. The road has a wire fence and is bordered by a fairly heavy growth of high weeds and bushes. The ground is dry and dusty. Sergeant, how do you conduct your movement south?

Sergeant Allen: As my patrol is now in a very dangerous neighborhood and very liable to be caught between two hostile lines, with a deep creek between our present position and our platoon, I think it best to move cautiously southeast until I reach the creek bank (I cannot see it from where I now am), and then follow the creek south. I think I am very apt to find the enemy's left resting on this creek. Besides, if I do not soon locate the enemy, I can hold the main body of my patrol close to the creek and send scouts in towards the road to search for the enemy. It will also be much easier to send information back to the platoon from the creek bank, as a messenger can ford it and head southeast until he strikes the railroad and then follow that straight back to our starting point. It would thus be very difficult for him to get lost.

Captain: You move southeast and strike the creek bank just south of the railroad trestle. You now hear artillery fire off to the west and rifle fire to the southwest which gradually increases in volume. You see a high cloud of dust hanging over the road on the hill west of Mason's and south of this road on the north slope of the northern-most knoll of the Twin Hills, you can occasionally see the flash of a gun, artillery, being discharged. There seems to be no rifle firing directly in your front.

Sergeant Allen: I hurriedly write the following message:

At Ry. trestle 1 mi. N. of Platoon,
5.15 A. M.

Captain X:

Can see arty. firing from position on N. slope of knoll on high ridge to W. of me and $\frac{1}{4}$ mi. S. of E. and W. road. Hostile line is S. of me. Have not located it. Will move S.

Allen,
Sgt. (Par. 44, p. 48.)

I hand this to Private Smith and say to him, "Carry this quickly to the Captain. Follow the railroad back until you cross a wagon road. Our platoon should be to the west of the track just beyond the road." I also read the message to Smith and point out the hostile artillery. I have considered that I sent a message before telling about the hostile advance.

I then continue south, moving slowly and with great caution. I instruct the remaining four men that in case we are surprised to try to cross the creek and follow the railroad back to the platoon.

Captain: Your information about the hostile artillery position was important and should have been sent in, provided you think your description of the hostile position was sufficiently clear to be understood by an observer within your own lines.

There is some question as to the advisability of your remaining on the west bank of the creek. Still you would not be able to tell from where you were what direction the creek took, so you probably would remain on the west bank for the present.

You continue south for about 150 yards and your leading man halts, comes back to you, and reports that the corn ahead is broken and trampled, showing it has been passed over by foot troops. About the same time you hear rifle fire to your immediate front. It sounds very close.

Sergeant Allen: I say, "Cross this creek at once," and when we reach the other bank and the patrol forms again, we move slowly south, all the men keeping away from the creek bank, except myself, and I march opposite the two men constituting the main body.

Captain: About this time you detect a movement in the corn across the creek in rear of the place you have just left. You think it is a body of troops moving south. The firing in front seems to be delivered from a point about two or three hundred yards south of you and you can hear heavy firing from off in the direction of your company, a few bullets passing overhead. There are scattered trees along the creek and some bushes close to the edge.

Sergeant Allen: I would conceal myself close to the bank, the patrol being back, out of sight from the opposite bank, and await developments.

Captain: Sergeant, your patrol is in a dangerous position. The enemy will very likely have a patrol or detachment in rear and beyond his flank. This patrol would probably cross the railroad trestle and take you in rear. You should have given the last man in your patrol particular instructions to watch the railroad to the north. It would have been better if you had sent one man over to the railroad, which is only a short distance away, and had him look up and down the track and also make a hurried survey of the country from an elevated position on the fill.

I also think it would be better not to await developments where you now are, but to push south and make sure of the position of the left of the enemy's firing line. Later you can devote more time to the movements in rear of the first line. You are taking too many chances in remaining where you are. I do not mean that you should leave merely because you might have some of your men killed or captured, but because if this did occur you would probably not be able to accomplish your *mission*. Later you may have to run a big chance of sacrificing several of your men, in order to get the desired information, which would be entirely justifiable. Tell me how your men are arranged and what your next movement would be.

Sergeant Allen: I have four men left. I am close to the stream's bank, under cover; two men are about 25 yards further away from the stream; Private Brown is up stream as far off as he can get and still see the other two men, and Private Foster is down stream the same distance. Both Brown and Foster are well back from the stream. The two men in the middle, the main body of the patrol, make their movements conform to mine, and Brown and Foster regulate their movements on the main body. I will move south until I can locate the enemy's advance line.

Captain: When you are about opposite the Mason house, Brown comes back to you, having signaled halt, and reports he can see the enemy's firing line about 100 yards ahead on the other side of the stream, and that a small detachment is crossing the stream just beyond where he was. What do you do?

Sergeant Allen: I creep forward with Brown to verify his report. The remainder of the patrol remains in place.

Captain: You find everything as Brown reported. You see that the firing line extends along the southern edge of the cornfield, facing an uncultivated field covered with grass and frequent patches of weeds two to three feet high. You cannot determine how strong the line is, but a heavy fire

is being delivered. You cannot see the detachment that crossed the creek south of you because of the standing corn.

Sergeant Allen: I crawl back to the main body, leaving Brown, and write the following message:

5/6 mi. N. of Platoon,
5:32 A. M.

Captain X:

Enemy's left rests on creek $\frac{3}{4}$ mile to your front, along S. edge of corn-field. Creek is 5 ft. deep by 60 ft. wide. Hostile patrols have crossed creek. Will watch their rear.

Allen,
Sgt.

I give this to Private James and say, "Go over to the railroad (pointing), then turn to your right and follow the track until you cross a wagon road. Our platoon is just beyond that, on this side of the track. Give this message to the Captain. Hurry."

Captain: You should have either read the message to James or had him read it. You should also have cautioned him to watch out for that hostile detachment. It might be better to send another man off with a duplicate of the message, as there is quite a chance that James may not get through and the message is all-important. James, you get back to the wagon road here (pointing) and find yourself in the right of your battle line, but can not locate me or the company right away.

Private James: I would show the note to the first officer I saw in any event, and in this case, I would turn it over to the officer who appeared to be in command of the battalion or regiment on the right of the line, telling him what company the patrol belonged to, when we went out, etc.

Captain: What do you do, Sergeant?

Sergeant Allen: I start to move north a short distance in order to find out what reinforcements are in rear of the hostile line.

Captain: After you have moved about 75 yards you are suddenly fired into from across the creek, and at the same time from the direction of the railroad trestle. Your men break and run east through the corn and you follow, but lose sight of them. When you cross the railroad fill you are fired on from the direction of the bridge. You finally stop behind the railroad fill on the Quarry switch, where two of your men join you.

Sergeant Allen: I would start south to rejoin the company and report.

Captain: That would be a mistake. It would require a long time for a

second patrol to make its way out over unknown ground, filled with hostile patrols, to a point where they could observe anything in rear of the hostile flank. You are now fairly familiar with the ground, you also know about where the hostile patrols are and you have two men remaining. After a brief rest in some concealed place nearby, you should start out again to make an effort to determine the strength of the troops in rear of the hostile flank near you, or at least remain out where you could keep a sharp lookout for any attempted turning movement by the enemy. Should anything important be observed you can send back a message and two of you remain to observe the next developments before returning. The information you might send back and the additional information you might carry back, would possibly enable your own force to avoid a serious reverse or obtain a decided victory.

Your work would be very hazardous, but it is necessary, and while possibly resulting in loss of one or two of your men, it might prevent the loss of hundreds in your main force.

CHAPTER V.

THE SERVICE OF SECURITY.

General Principles.

81. The Service of Security embraces all those measures taken by a military force to protect itself against surprise, annoyance or observation by the enemy. On the march, that portion of a command thrown out to provide this security is called an *advance*, *flank* or *rear guard*, depending on whether it is in front, to the flank or in rear of the main command; in camp or bivouac, it is called the *outpost*.

82. The principal duties of these bodies being much the same, their general formations are also very similar. There is (1) *the cavalry covering the front*; next (2) *a group* (4 men to a platoon) or *line of groups in observation*; then (3) *the support*, or *line of supports*, whose duty is to furnish the men for the observation groups and check an enemy's attempt to advance until reinforcements can arrive; still farther in rear is (4) *the reserve*.

83. In small commands of an infantry regiment or less there usually will not be any cavalry to cover the front, and the reserve is generally omitted. Even the support may be omitted and the observation group or line of groups be charged with checking the enemy, in addition to its regular duties of observation. *But whatever the technical designation of these subdivisions, the rearmost one is always in fact a reserve.* For example, if the command is so small that the subdivision formally designated as the *reserve* is omitted, the rear element (squad or platoon or company, etc.) is used as a reserve. As this text deals principally with small commands and only those larger than a regiment usually have the subdivision termed the *reserve*, this distinction between the element in the Field Service Regulations called the reserve and the *actual* reserve, must be thoroughly understood.

The arrangements or formations of all detachments thrown out from the main force to provide security against the enemy, are very flexible, varying with every military situation and every different kind of country. The commander of such a detachment must, therefore, avoid blindly ar-

ranging his men according to some fixed plan and at certain fixed distances. Acquire a general understanding of the principles of the service of security and then with these principles as a foundation *use common sense in disposing troops for this duty.*

ADVANCE GUARDS.

84. Definition and Duties. An advance guard is a detachment of a marching column thrown out in advance to protect the main column from being surprised and to *prevent its march from being delayed or interrupted.* (The latter duty is generally forgotten and many irritating, short halts result, which wear out or greatly fatigue the main body, the strength of which the advance guard is supposed to conserve.)

In detail the duties of the advance guard are:

1. To guard against surprise and furnish information by reconnoitering to the front and flanks.
2. To push back small parties of the enemy and prevent their observing, firing upon or delaying the main body.
3. To check the enemy's advance in force long enough to permit the main body to prepare for action.
4. When the enemy is met on the defensive, to seize a good position and locate his lines, *care being taken not to bring on a general engagement unless the advance guard commander is authorized to do so.*
5. To remove obstacles, repair the road, and favor in every way possible the steady march of the column.

85. Strength. The strength of the advance guard varies from one-ninth to one-third of the total command. The larger the force the larger in proportion is the advance guard, for a larger command takes relatively longer to prepare for action than a small one. For example, a company of 100 men would ordinarily have an advance guard of from one to two squads, as the company could deploy as skirmishers in a few seconds. On the other hand, a division of 20,000 men would ordinarily have an advance guard of about 4,500 men, all told, as it would require several hours for a division to deploy and the advance guard must be strong enough to make a stubborn fight.

86. Composition. The advance guard is principally composed of infantry, preceded if possible, by cavalry well to the front. When there is only infantry, much more patrolling is required of the front troops than

when cavalry (called "Advance cavalry") is out in advance. This book does not deal with large advance guards containing artillery and engineers. Machine guns, however, will be frequently used in small advance guards to hold bridges, defiles, etc.

87. Distance From Main Body. The distance at which the advance guard precedes the main body or the main body follows the advance guard depends on the military situation and the ground. It should always be great enough to allow the main body time to deploy before it can be seriously engaged. For instance, the advance guard of a company, say 1 squad, should be 350 to 500 yards in advance of the company. The distance from the leading man back to the principal group of the squad should generally be at least 150 yards. This, added to the distance back to the main body or company, makes a distance of from 500 to 650 yards from the leading man to the head of the main body.

Examples:

<i>Command</i>	<i>Advance Guard</i>	<i>Distance (yds.)</i>
Patrol of 1 squad	2 men	100 to 300
Section of 3 squads	4 men	200 to 400
Inf. platoon of 50 men	1 squad	300 to 450
Cav. platoon of 20 men	4 men	300 to 450
Inf. company of 108 men	1 to 2 squads	350 to 500
Cav. troop of 86 men	$\frac{1}{2}$ platoon	450 to 600
Inf. battalion	$\frac{1}{2}$ to 1 company	500 to 700
Cav. squadron	$\frac{1}{2}$ to 1 troop	600 to 800

These are not furnished as fixed numbers and distances, but are merely to give the student an approximate, concrete idea.

88. Connecting Files. It should be remembered that between the advance guard and the main body, and between the several groups into which the advance guard is subdivided, **connecting files** are placed so as to furnish a means of communicating, generally by signals, between the elements (groups) of the column. There should be a connecting file for at least every 300 yards. For example, suppose the advance guard of a platoon is 300 yards in front of the main body. In ordinary rolling country, not heavily wooded, a connecting file would be placed half way between the two elements—150 yards from each one.

It is generally wiser to use two men together instead of one, because this leaves one man free to watch for signals from the front while the

other watches the main body. However, in very small commands like a company, this is not practicable, as the extra man could not be spared.

FORMATION OF ADVANCE GUARDS.

89. Subdivisions. The advance guard of a large force like a brigade or division is subdivided into a number of groups or elements, gradually increasing in size from front to rear. The reason for this is that, as has already been explained, a larger group or force requires longer to deploy or prepare to fight than a smaller one, therefore the small subdivisions are placed in front where they can quickly deploy and hold the enemy temporarily in check while the larger elements in rear are deploying. The number of these subdivisions decreases as the strength of the advance guard decreases, until we find the advance guard of a company consists of one or two squads, which naturally cannot be subdivided into more than two groups; and the advance guard of a squad composed of two men, which admits of no subdivision.

Distance to next element in rear.

<i>Advance Cavalry</i>	1 to 5 miles
<i>Support</i> { <i>Advance party</i>	{ <i>Point</i>150 to 300 yds
{ (furnishes patrols)	{ <i>Advance party proper</i> 300 to 600 yds.
{ <i>Support proper</i>	400 to 800 yds.
<i>Reserve</i> (usually omitted in small commands)	500 yds. to 1 mile

The distances vary principally with the size of the command—slightly with the character of the country.

91. The advance cavalry is that part of the advance guard going in front of all the foot troops. It is generally one to five miles in advance of the infantry of the advance guard, reconnoitering at least far enough to the front and flanks to guard the column against surprise by artillery fire—4,500 yds.

92. Support—(a) The support constitutes the principal element or group of all advance guards. It follows the advance cavalry, when there is any, and leads the advance guard when there is no cavalry. The support of a large command is subdivided within itself in much the same manner as the advance guard as a whole is subdivided. It varies in strength from one-fourth to one-half of the advance guard.

(b) *Advance party*—As the support moves out it sends forward an *ad-*

of the country and size of the command. For example, the *advance party* of a support of one company of 108 men, would ordinarily be composed *advance party* several hundred yards, the distance varying with the nature of one section of three squads, and would march about 300 yards in advance of the company in open country, and about 200 yards in wooded country.

The *advance party* sends out the patrols to the front and flanks to guard the main body of the *support* from surprise by *effective rifle fire*. Patrols are only sent out to the flanks to examine points that cannot be observed from the road. As a rule they will have to rejoin some portion of the column in rear of the *advance party*. As the *advance party* becomes depleted in strength in this manner, fresh men are sent forward from the main body of the support to replace those who have fallen behind while patrolling. When there is advance cavalry, much less patrolling is required of the infantry.

(c) *The point* is a patrol sent forward by the advance party 150 to 300 yards. When the advance party is large enough the point should ordinarily consist of a complete squad, commanded by an officer or experienced noncommissioned officer. It is merely a patrol in front of the column and takes the formation described for patrols.

(d) *The commander* of the support ordinarily marches with the advance party. He should have a map and control of the guide, if any is present. He sees that the proper road is followed; that guides are left in towns and at cross roads; that bridges, roads, etc., are repaired promptly so as not to delay the march of the column and that information of the enemy is promptly sent back to the advance guard commander; he verifies the correctness of this information, if possible.

93. (a) *A thorough understanding of the arrangement of the support and the duties of the leaders of its subdivisions—point, flank patrols, advance party and main body (of the support)—is of the greatest importance to a noncommissioned officer.* For example, the ignorance of one noncommissioned officer leading the advance party of a column of troops six miles long can cause the entire column to be delayed. If he halts because a few shots are fired at his men, and conducts a careful reconnaissance before attacking (instead of pushing right in on the enemy, forcing him to fall back quickly, if a weak detachment; or, to disclose his strength, if strong), the entire column, six miles long, is halted, the march interrupted, valuable time lost, and what is more important, the men irritated and tired out.

(b) *The leader of the point* must understand that as *the principal duty of an advance guard is to secure the safe and uninterrupted march of the main body*, he is the first man to discharge this duty. If, for example, his squad receives a volley of shots from some point to the front, he cannot take the time and precautions the commander of a larger body would take to reconnoiter the enemy's position, determine something about his strength, etc., before risking an attack. If he did he would not be securing the *uninterrupted march* of the main body. He has to deploy instantly and press the enemy hard until the hostile opposition disappears or the advance party comes up and its commander takes charge. The *point* will lose men in this way, but it is necessary, for otherwise one small combat patrol could delay the march time after time.

(c) The same problem must be met in much the same manner by the *leader of the advance party*. In this case there is more time to think, as the *point*, being in advance, will have begun the fight before the advance party arrives; but the leader of the advance party must use his men freely and quickly to force the enemy to "show his hand," thus preventing small harassing or combat detachments from delaying the march.

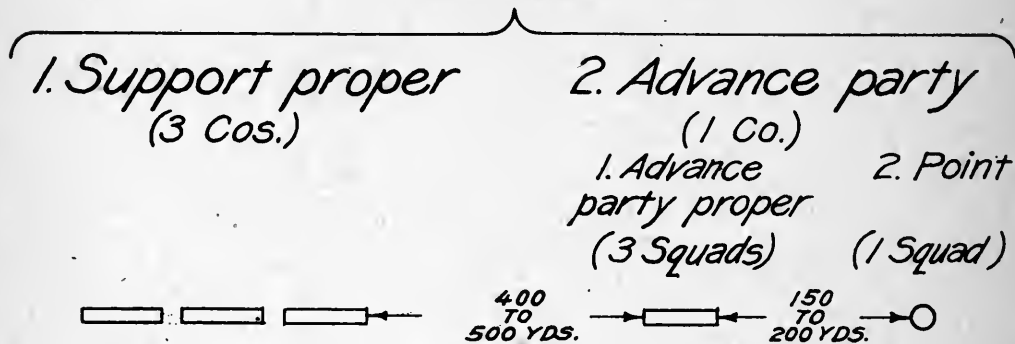
(d) As the subdivisions of the advance guard become larger their leaders act with increasing caution, for as soon as it develops that the enemy in front is really present in some strength, then a halt becomes obligatory and a careful reconnaissance necessary.

(e) The leader of every subdivision must always start a reconnaissance the instant the enemy develops. He may, as in the case of the point, only send one man around to discover the enemy's strength; or, if the leader of the main body of the support, he may send an entire squad. In almost every case the instant he has given his orders for deploying and firing at or rushing the enemy, he sends out his man or men to work around to a position permitting a view of the hostile force. Every noncommissioned officer should impress this on his memory so that *he will not forget it in the excitement of a sudden engagement*.

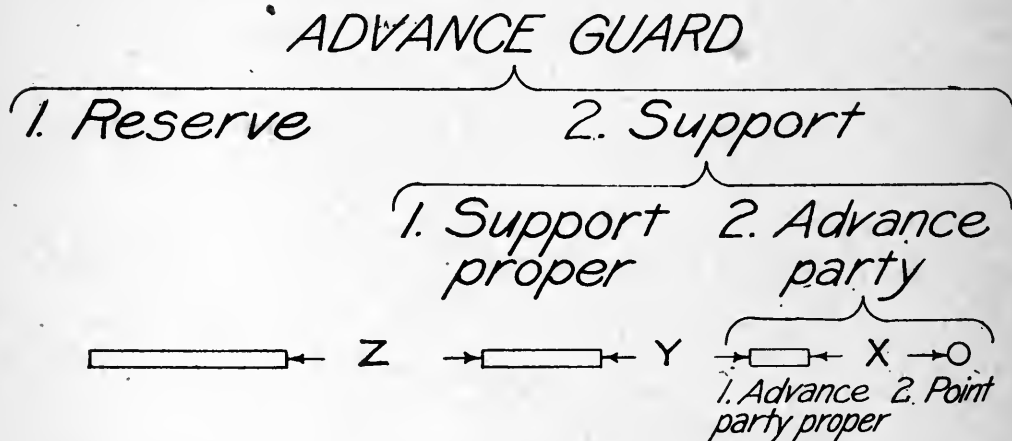
(f) No attempt should be made to subdivide the advance guard of a small force into all the elements previously described. For example, the advance guard of a squad is simply a point of one or two men; the advance guard of a company is usually no more than a squad acting as a point, the squad actually having several men from 100 to 150 yards in advance, who really constitute a point for the squad; the advance guard of a battalion would usually consist of a company or less distributed as an advance party proper and a point. The advance guard of a regiment

would have no reserve—if, for example, a battalion were used as the advance guard of a regiment, there would be only a support, which would be distributed about as follows: A support proper of about three companies and an advance party (point included) of about one company.

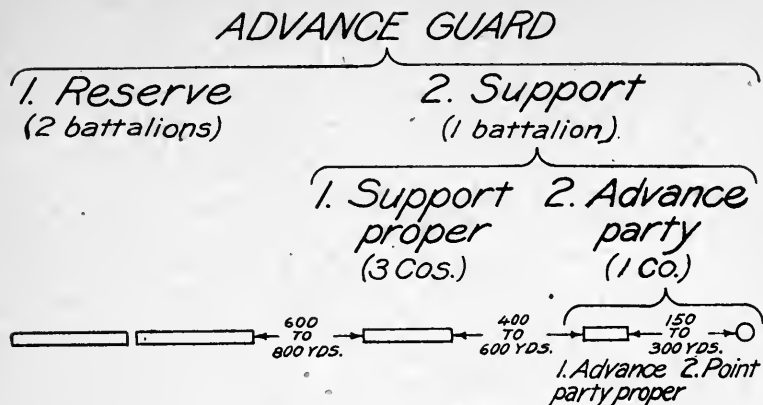
(BATTALION ACTING AS ADVANCE GUARD. NO RESERVE)
SUPPORT



94. Reserve. An advance guard large enough to have a reserve would be distributed as follows:



The distance Z would be greater than Y and Y would be greater than X. For example, a regiment acting as the advance guard of a brigade would, under ordinary conditions, be distributed about as follows:



As only large commands have a reserve, which would always be commanded by an officer, noncommissioned officers need not give this much consideration, but it must be understood that while this fourth subdivision of the advance guard is the only one officially termed *reserve*, the last subdivision of any advance guard actually is a reserve, no matter what its official designation.

95. The advance guard of a cavalry command adopts formations similar to those described above, except that the distances are increased because of the rapidity with which the command can close up or deploy. An advance party with a few patrols is usually enough for a squadron, and precedes it from 600 to 1,000 yards.

96. Reconnaissance. In reconnaissance the patrols are, as a rule, small (from two to six men).

The flanking patrols, whether of the advance cavalry or of the advance party, are sent out to examine the country wherever the enemy might be concealed. If the nature of the ground permits, these patrols march across country or along roads and trails parallel to the march of the column. For cavalry patrols this is often possible; but with infantry patrols and even with those that are mounted, reconnaissance is best done by sending the patrols to high places along the line of march to overlook the country and examine the danger points. These patrols signal the results of their observations and, unless they have other instructions, join the columns by the nearest routes, other patrols being sent out as the march proceeds and as the nature of the country requires.

Deserters, suspicious characters and bearers of flags of truce (the latter blindfolded), are taken to the advance guard commander.

97. Advance Guard Order. On receipt of the order for a march designating the troops for the advance guard, the commander of the latter makes his estimate of the situation; that is, he looks at the map or makes

Delivered verbally to assembled troop, battalion and battery commanders and staff; copy to det. commander by Lt. N.

Note: The paragraphs on the left lettered (a), (b), (c), etc., are called the *distribution*, and those on the right numbered 1, 2, 3, etc., are called *body*.

98. In issuing his order to an advance guard a noncommissioned officer should follow the form above, except that it should be verbal, and the troops in each part of the advance guard should be named in the body of the order. For example, in giving an advance guard order for one platoon, the noncommissioned officer would say, for instance, to his platoon:

"A Red battalion is reported to have camped near Atchison last night. Our battalion will march towards Kickapoo this morning.

"This platoon will form the advance guard and will march out the Atchison Pike, followed by the main body at 500 yards.

"The point will start at 5.45 A. M. and move by the Atchison Cross-Frenchman-Kickapoo road. The remainder of the advance guard will follow at 300 yards.

"I will march with the point."

ADVANCE GUARD PROBLEMS.

Problem No. 1 (Infantry).

Captain (to one platoon of his company): We will assume that our battalion camped last night at Oxford (Elementary Map) in the enemy's country. It is now sunrise, 5:30 A. M.; camp has been broken and we are ready to march. The officers have returned from reporting to the Major for orders and I fall in the company and give the following orders:

"A regiment of the enemy's cavalry is thought to be marching towards Salem from the south. Our battalion will march at once towards Salem to guard the railroad trestle over Sandy Creek, following this road (pointing southeast along the road out of Oxford) and the Chester Pike, which is one and three-quarters miles from here.

"This company will form the advance guard.

"Sergeant Adams, you will take Corporal Baker's squad and form the point, followed by the remainder of the company at about 400 yards. Patrols and connecting files will be furnished by the company.

"The company wagon will join the wagons of the battalion.

"I will be with the company.

"Move out at once."

The weather is fine and the roads are good and free from dust. It is August and nearly all the crops are harvested. Bushes and weeds form a considerable growth along the fences bordering the road.

Sergeant, give your orders.

Sergeant Adams: 1st squad, 1. RIGHT, 2. FACE; 1. FORWARD, 2. MARCH. Corporal Baker, take Carter (Baker's rear rank man) and go ahead of the squad about 200 yards. Move out rapidly until you get your distance and then keep us in sight.

I would then have the two leading men of the rest of the squad follow on opposite sides of the road, as close to the fence as possible for good walking. This would put the squad in two columns of files of three men each, leaving the main roadway clear and making the squad as inconspicuous as possible, without interfering with ease of marching or separating the men. (Par. 92-c, p. 86.) What sort of crops are in the fields on either side of the road?

Captain: The field on the right (south) is meadow land; that on the left, as far as the railroad, is cut hay; beyond the railroad there is more meadow land.

Sergeant Adams: I would have told Corporal Baker to wait at the cross roads by the Baker house for orders and——

Captain: If you were actually on the ground you probably could not see the cross roads from Oxford. In solving map problems like these do not take advantage of seeing on the map all the country that you are supposed to go over, and then give orders about doing things at places concerning which you would not probably have any knowledge if actually on the ground without the map.

Besides, in this particular case, it was a mistake to have your point wait at the cross roads. If there was any danger of their taking the wrong road it would be a different matter, but here your mission requires you to push ahead. (Par. 93-b, p. 87.) The Major is trying to get south of the trestle towards Salem before the cavalry can arrive and destroy it.

Sergeant Adams: I would march steadily along the road, ordering the last man to keep a lookout to the rear for signals from the connecting file (Par. 88), and I would direct one of the leading men to watch for signals from Corporal Baker.

Captain: You should have given the direction about watching for signals earlier, as this is very important. You also should have ordered two men to follow along the timber by the creek to your south until you sig-

naled for them to come in. The trees along the creek would obstruct your view over the country beyond the creek.

Sergeant Adams: But I thought, Captain, that the patrolling was to be done by the company.

Captain: Yes, the patrolling is to be done by the company, but the creek is only a quarter of a mile, about 400 yards, from the road you are following and the men sent there are merely flankers, not a patrol. You have eight men under your command and you are responsible for the ground within several hundred yards on either side of your route of march. Long Ridge is almost too far for you to send your men, because they would fall far behind in climbing and descending its slopes, but it would not be a great mistake if you sent two men there. As Long Ridge affords an extended view of the valley through which the Chester Pike runs, a patrol should go up on it and remain there until the battalion passes, and this would be more than the leading squad could be expected to attend to. The creek is almost too far from the road in places, but as it is open meadow land you can keep the men within easy touch of you and recall them by signal at any moment you desire. In this work you can see how much depends on good judgment and a proper understanding of one's *mission*.

Corporal Baker, explain how you would move out with Carter.

Corporal Baker: We would alternate the walk and double time until we had gotten about 200 yards ahead of the squad. I would then say, "Carter, walk along this side of the road (indicates side), keeping on the lookout for signals from the squad. I will go about 50 yards ahead of you." I would keep to the opposite side of the road from Carter, trying to march steadily at the regular marching gait, and keeping a keen watch on everything in front and to the flanks.

Captain: Very good. When you arrive at the cross roads you see a man standing in the yard of the Baker house.

Corporal Baker: I would not stop, but would continue on by the cross roads, as I have no time to question the man and the Sergeant will want to do that. I would call to him and ask him if he had seen any of the enemy about and how far it was to the Chester Pike. If anything looked suspicious around the house or barnyard, I would investigate.

Captain: Sergeant, you arrive at the cross roads, and see the Corporal and Carter going on ahead of you.

Sergeant Adams: I would have already signaled to the two men following the creek to come in and would send a man to meet them with the following order: "Tell Davis to move along the railroad fill with Evans,

keeping abreast of us. Then you return to me." I would then say, "Fiske, look in that house and around the barn and orchard and then rejoin me down this road (pointing east)." I would have the civilian join me and walk down the road with me while I questioned him.

Captain: Do you think you have made careful arrangements for searching the house, etc., by leaving only one man to do the work?

Sergeant Adams: I have not sufficient men nor time enough to do much more. I simply want to make sure things are reasonably safe and I thought that a couple of men from the main body of the advance guard would do any careful searching, questioning, etc., that might be deemed necessary. I must not delay the march.

Captain: That is right. You learn nothing from the civilian and he does not arouse any suspicion on your part. You continue along the road. The fields to the north of the road are in wheat stubble; the ground to the south, between your road and the railroad, is rough, rocky grass land with frequent clumps of bushes. Davis and Evans, your right flankers on the railroad fill, are just approaching the cut; Fiske has rejoined; Corporal Jones and his men are about 200 yards from the road forks at Brown's, and you and your four men are 200 yards in their rear, at the turn of the road. At this moment a half dozen shots are fired down the road in your direction from behind the wall along the edge of the orchard on the Brown farm. This firing continues and your two leading men are lying down at the roadside returning the fire. Tell me quickly just what you are going to do?

Sergeant Adams: I order my four men to deploy as skirmishers in that field (pointing to the rough ground south of the road); I go under the fence with the men and lead them forward at a fast run, unless the fire is very heavy.

Captain (interrupting the Sergeant): Davis, you had just reached the cut on the railroad when this happened. What do you do?

Private Davis: I take Evans forward with me at a run through the cut. What do I see along the Chester Pike or Sandy Creek?

Captain: You see no sign of the enemy any place, except the firing over the wall.

Private Davis: I run down the south side of the fill and along towards the road with Evans to open fire on the enemy from their flank, and also to see what is in the orchard. I will probably cross the road so that I can see behind the stone wall.

Captain: That's fine and shows how you should go ahead at such a

time without any orders. There is usually no time or opportunity at such a moment for sending instructions and you must use common sense and *do something*. Generally it would have been better to have tried to signal or send word back that there was nothing in sight along the road or in the valley, but in this particular case you could probably do more good by going quickly around in rear as you did, to discover what was there and assist in quickly dislodging whatever it was. If there had been no nose of the ridge to hide you as you came up and a convenient railroad fill to hurry along behind as you made for the road, your solution might have been quite different.

Sergeant, continue with your movements.

Sergeant Adams: I would attempt to rush the wall. If the fire were too heavy, I would open fire (at will) with all my men, and, if I seemed to get a little heavier fire than the enemy's, I would start half of my men forward on a rush while the others fired. I would try to rush in on the enemy with as little delay as possible, until it developed that he had more than a small detachment there. I assumed it was a delaying patrol in front of me, and as my *mission* requires me to secure the uninterrupted march of the main body, I must not permit any small detachment to delay me. If, however, it proves to be a larger force, for instance, the head of an advanced guard, I will lose some men by plunging in, but as I understand it, that is the duty of the point. Then again, if it be the head of a hostile advance guard, I will want to rush them out of their favorable position under cover of the stone wall, buildings and orchard; before any more of their force can come up. This would give the favorable position to our force; by acting too cautiously we would lose the valuable moments in which the enemy's reinforcements (next element of the advance guard) were coming up, with this desirable position being weakly held by a small part of the enemy.

Captain: That is all correct. What messages would you have sent?

Sergeant Adams: Up to the present time I would not have sent any. I could not have sent any. I could not afford to take the time to send a man back, nor could I spare the man. Besides, all I could say was that we were fired on, and you should be able to see and hear that from where the company is.

Captain: About the time you reached the position of Corporal Baker the firing ceases, and when you reach the wall you see five mounted men galloping northeast up Farm Lane. The Brown farm appears to be deserted.

Sergeant Adams: I would turn to one of the men and say, "Run back to

the Captain and tell him we were fired on from this orchard by a mounted patrol of five men who are galloping off up a lane to the northeast. I am going south." When he had repeated the message I would start south down the Chester Pike, directing Corporal Baker to follow this road south and to tell Davis to follow the high ridge west of the road, going through the clump of woods just ahead. I would send one man as a right flanker to follow the west bank of Sandy Creek. This would leave me with two men, one watching for signals from the front and along Sandy Creek, the other from Davis and from the rear. I would expect to see a patrol from the company moving across towards Boling Woods. Had I not been mixed up in a fight as I approached the Brown farm I would have sent two men as left flankers across country to the cut on the Chester Pike on the western edge of the Boling Woods.

Captain: Very good. That is sufficient for this problem. All of you should have caught the idea of the principal duties of the point and flankers of an advance guard. You must watch the country to prevent being surprised and you must at the same time manage to push ahead with the least possible delay. The point cannot be very cautious so far as concerns its own safety, for this would mean frequent halts which would delay the troops in rear, but it must be cautious about reconnoitering all parts of the ground near the road which might conceal large bodies of the enemy.

The leader of the point must be careful in using his men or he will get them so scattered that they will become entirely separated and he will lose all control of them. As soon as the necessity for flankers on one side of the line of march no longer exists, signal for them to rejoin and do not send them out again so long as you can see from the road all the country you should cover.

Problem No. 2 (Infantry).

Captain (to one platoon of his company): Let us assume that this platoon is the advance party of an advance guard, marching through Salem along the Chester Pike (Par. 92-b, p. 85). One squad is 350 yards in front, acting as the point. The enemy is thought to be very near, but only two mounted patrols have been seen during the day. The command is marching for Chester. The day is hot, the roads are good but dusty, and the crops are about to be harvested.

Sergeant Adams, explain how you would conduct the march of the advance party, beginning with your arrival at the cross roads in Salem.

Sergeant Adams: The platoon would be marching in column of squads

and I would be at the head. Two pairs of connecting files would keep me in touch with the point (Par. 88). I would now give this order: "Corporal Smith, take two men from your squad and patrol north along this road (pointing up the Tracy-Maxey road) for a mile and then rejoin the column on this road (Chester Pike), to the west of you." I would then say to Private Barker, "Take Carter and cut across to that railroad fill and go along the top of that (Sandy) ridge, rejoining the column beyond the ridge. Corporal Smith with a patrol is going up this road. Keep a look-out for him." When we reached the point where the road crosses the south nose of Sandy Ridge and I saw the valley in front of me with the long high ridge west of Sandy Creek, running parallel to the Chester Pike and about 800 yards west of it, I would give this order: "Corporal Davis, take the three remaining men in Corporal Smith's squad, cross the creek there (pointing in the direction of the Barton farm) go by that orchard, and move north along that high ridge, keeping the column in sight. Make an effort to keep abreast of the advance guard, which will continue along this road."

I gave Corporal Davis the remaining men out of Corporal Smith's squad because I did not want to break up another squad and as this is, in my opinion, a very important patrol, I wanted a noncommissioned officer in charge of it. Unless something else occurs this will be all the patrols I intend sending out until we pass the steel railroad trestle over Sandy Creek.

Captain: Your point about not breaking up a squad when you could avoid it by using the men remaining in an already broken squad, is a very important one. Take this particular case. You first sent out two pairs of connecting files between the advance party and your point—4 men. This leaves a corporal and three men in that squad. If we assume that no patrols were out when we passed through Salem, this corporal and two of his men could have been sent up the Tracy-Maxey road, leaving one man to be temporarily attached to some squad. From the last mentioned squad you would pick your two men for the Sandy Ridge patrol and also the corporal and three men for the Barton farm, etc., patrol. This would leave three men in this squad and you would have under your immediate command two complete squads and three men. As the patrols return, organize new squads immediately and constantly endeavor to have every man attached to a squad. This is one of your most important duties, as it prevents disorder when some serious situation suddenly arises. Also it is one of the duties of the detachment commander that is generally overlooked until too late.

The direction you sent your three patrols was good and their orders clear, covering the essential points, but as you have in a very short space of time, detached nine men, almost a third of your advance party, don't you think you should have economized more on men?

Sergeant Adams: The Sandy Ridge patrol is as small as you can make it—two men. I thought the other two patrols were going to be detached so far from the column that they should be large enough to send a message or two and still remain out. I suppose it would be better to send but two men with Corporal Davis, but I think Corporal Smith should have two with him.

Captain: Yes, I agree with you, for you are entering a valley which is, in effect, a defile, and the Tracy-Maxey road is a very dangerous avenue of approach to your main body. But you must always bear in mind that it is a mistake to use one more man than is needed to accomplish the object in view. The more you send away from your advance party, the more scattered and weaker your command becomes, and this is *dispersion*, which constitutes one of the gravest, and at the same time, most frequent tactical errors.

To continue the problem, we will suppose you have reached the stone bridge over Sandy Creek; the point is at the cross roads by the Smith house; you can see the two men moving along Sandy Ridge; and Corporal Davis's patrol is just entering the orchard by the Barton farm. Firing suddenly commences well to the front and you hear your point reply to it.

Sergeant Adams: I halt to await information from the point.

Captain: That is absolutely wrong. You command the advance party of an advance guard; your mission requires you to secure the uninterrupted march of the main body; and at the first contact you halt, thus interrupting the march. (Par. 84, p. 83.) The sooner you reach the point, the better are your chances for driving off the enemy if he is not too strong, or the quicker you find out his strength and give your commander in the rear the much desired information.

Sergeant Adams: Then I push ahead with the advance party, sending back the following message—

Captain (interrupting): It is not time to send a message. You know too little and in a few minutes you will be up with the point where you can hear what has happened and see the situation for yourself. Then you can send back a valuable message. When but a few moment's delay will probably permit you to secure much more detailed information, it is gen-

erally best to wait for that short time and thus avoid using two messengers. When you reach the cross roads you find six men of the point deployed behind the fence, under cover of the trees along the County Road, just west of the Chester Pike, firing at the stone wall along the Mill's farm lane. The enemy appears to be deployed behind this stone wall, from the Chester Pike west for a distance of 50 yards, and his fire is much heavier than that of your point. You think he has at least twenty rifles there. You cannot see down the Chester Pike beyond the enemy's position. Your patrol on Sandy Ridge is midway between the 68 and 66 knolls, moving north. The ground in your front, west of the road, is a potato field; that east of the road as far as the swamp, is rough grass land.

Sergeant Adams: I give order, "Corporal Gibbs, deploy your squad to the right of the Pike and push forward between the Pike and the swamp. Corporal Hall (commands the point), continue a heavy fire. Here are six more men for your squad." I give him the four connecting files and two of the three men in the advance party whose squad is on patrol duty. "Corporal Jackson, get your squad under cover here. Lacey, run back to the Major and tell him the point has been stopped by what appears to be 20 of the enemy deployed behind a stone wall across the valley 500 yards in our front. I am attacking with the advance party."

Captain: Corporal Davis (commands patrol near Barton farm), you can hear the firing and see that the advance is stopped. What do you do?

Corporal Davis: I would head straight across for the clump of woods on the ridge just above the Mills' farm, moving as rapidly as possible.

Captain: That is all right. Sergeant, Corporal Hall's squad keeps up a heavy fire; Corporal Gibbs' squad deploys to the right of the pike, rushes forward about 75 yards, but is forced to lie down by the enemy's fire, and opens fire. Corporal Gibbs, what would your command for firing be?

Corporal Gibbs: AT THE BOTTOM OF THAT WALL. BATTLE SIGHT. CLIP FIRING.

Captain: Why at the bottom of the wall?

Corporal Gibbs: The men are winded and excited and will probably fire high, so I gave them the bottom of the wall as an objective.

Captain: The enemy's fire seems as heavy as yours. Sergeant, what do you do?

Sergeant Adams: I give this order, "Corporal Jackson, deploy your squad as skirmishers on the left of Corporal Hall's squad and open fire." What effect does this additional fire have on the enemy?

Captain: His bullets seem to go higher and wilder. You appear to be getting *fire superiority* over him.

Sergeant Adams: If I do not see any signs of the enemy being reinforced, dust in the road behind his position, etc., I take immediate command of the squads of Corporals Hall and Jackson, and lead them forward on a rush across the potato field.

Captain: Corporal Gibbs, what do you do when you see the other two squads rush?

Corporal Gibbs: I order, "FIRE AT WILL," and urge the men to shoot rapidly in order to cover the advance.

Captain: Sergeant Adams's squads are forced to halt after advancing about 150 yards.

Corporal Gibbs: I keep up a hot fire until they can resume their firing, when I lead my squad forward in a rush.

Captain: What do you do, Sergeant?

Sergeant Adams: I would have the Corporals keep up a heavy fire. By this time I should think the support would be up to the cross roads.

Captain: It is, but have you given up your attack?

Sergeant Adams: If it looks as if I could drive the enemy out on my next rush, I do so, but otherwise I remain where I am, as I have no reserve under my control and the action has gotten too serious for me to risk anything more when my chief is practically on the ground to make the next decision. He should have heard something about what is on the Pike behind the enemy, from the patrol on Sandy Ridge.

Captain: Your solution seems correct to me. Why did you send Corporal Gibbs's squad up between the pike and the swamp?

Sergeant Adams: It looked like he would strike the enemy from a better quarter; there appeared to be better cover that way, afforded by the turn in the road, which must have some weeds, etc., along it, and the swamp would prevent him from getting too far separated from the remainder of the advance party.

Captain: The Sergeant's orders for the attack were very good. He gave his squad leaders some authority and attached his extra men to a squad. He did not attempt to assume direct control of individual men, but managed the three squads and made the squad leaders manage the individual men. This is the secret of successful troop leading. His orders were short, plain and given in proper sequence.

Problem No. 3 (Infantry).

(See Fort Leavenworth map in pocket at back of book.)

Situation.

A Blue battalion, in hostile country, is in camp for the night, August 5-6, at Sprong (*ja'*). At 9:00 P. M., August 5th, Lieutenant A, Adjutant gives a copy of the following order to Sergeant B:

1st Battalion, 1st Infantry,
Sprong, Kansas,
5 Aug., '09.

Field Orders No. 5.

1. The enemy's infantry is 6 miles east of FORT LEAVENWORTH. His cavalry patrols were seen at F (*qg'*) today.

Our regiment will reach FRENCHMAN'S (*oc'*) at noon tomorrow.

2. The battalion will march tomorrow to seize the ROCK ISLAND BRIDGE (*q*) at FORT LEAVENWORTH.

3. (a) The advance guard, consisting of 1st platoon Co. A and mounted orderlies B, C, and D, under Sergeant B, will precede the main body at 400 yards.

(b) The head of the main body will march at 6:30 A. M. from 19, via the 17 (*jc'*)—15 (*ig'*)—5 (*lm'*)—FORT LEAVENWORTH (*om'*) road.

4. The baggage will follow close behind the main body under escort of Corporal D and 1 squad Co. B.

5. Send reports to head of main body.

C,
Major, Comdg.

Copies to the company commanders, to Sergeant B and Corporal D.

A Required. 1. Give Sergeant B's estimate of the situation. (The estimate of the military situation includes the following points:

1. His orders or mission and how much discretion he is allowed.
2. The ground as it influences his duty.
3. The position, strength and probable intentions of the enemy.
4. Sergeant B's decision.

Answer. 1. The size of the advance guard, its route and the distance it is to move in front of the main body are prescribed by Major C. Sergeant

B is free to divide up the advance guard as he sees fit, to use the various parts so as to best keep open the way of the main body, maintain the distance of 400 yards in front of it, and protect it from surprise by the enemy.

2. The ground may be such as to make easy or to hinder reconnaissance, such as hills or woods; to impede or hasten the march, such as roads, streams, defiles; to offer good or poor defensive positions; to offer good or poor opportunities for an attack. Sergeant B sees from his map that the ground is rolling and open as far as Kern (*ji'*) with good positions for reconnaissance and for defense or attack. There is a bridge over Salt Creek (*ig'*) which has steep banks and will be a considerable obstacle if the bridge has been destroyed. From this creek to Kern the advance would be under effective fire from Hancock Hill (*ki'*) so that these heights must be seized before the main body reaches 15 (*ig'*).

Beyond Kern the heavy woods make reconnaissance difficult and must be treated somewhat like a defile by the point. (Par. 56, p. 57.)

3. There is little to fear from the main body of the enemy which is $1\frac{1}{2}$ miles farther from the Rock Island bridge than we are, but we know the enemy has cavalry. The size of the cavalry force is not known, and may be sufficient to cause us considerable delay, especially in the woods. The enemy's evident intention is to keep us from seizing the bridge.

4. Having considered all these points, Sergeant B comes to the following decision: * * * (Before reading the decision as contained in the following paragraph, make one of your own.)

Answer. To have only an advance party with which to throw forward a point of 5 men 200 yards to the front and send out flankers, as needed (Par. 56, p. 57); to send the three mounted orderlies well to the front of the point to gain early information of the enemy, especially on Hancock Hill (*ji'*) and the ridge to the north of 11 (*jj'*).

Required, 2. Sergeant B's order. (Par. 33, p. 43.)

Answer. Given verbally to the platoon and mounted orderlies, at 9:30 P. M.

"The enemy's cavalry patrols were seen at F (*qh'*) today; no hostile infantry is on this side of the Missouri River. The battalion will move tomorrow to Fort Leavenworth, leaving 19 (*ja'*) at 6:30 A. M.

"This platoon and orderlies B, C and D will form the advance guard, and will start from the hedge 400 yards east of 19 at 6:30 A. M. via the 17 (*jc'*)—15 (*ig'*)—5 (*lm'*) road.

"The point, Corporal Smith and 4 men of his squad, will precede the remainder of the advance guard at 200 yards.

"I will be with the advance party. Private X and Y will act as connecting files with the main body."

The flankers will be sent out from time to time by Sergeant B as necessary.

Required, 3. The flankers sent out by Sergeant B between 19 (*ja'*) and 15 (*ig'*).

Answer. A patrol of 3 men is sent to Hill 900 southeast of 19 (*ja'*), thence by Moss (*kc'*) and Taylor (*lc'*) houses to Hill 840 east of Taylor, thence to join at 15 (*ig'*).

Two men are sent from the advance party as it passes Hill 875.5 (*ie'*) to the top of this hill to reconnoiter to the front and northeast. These men return to the road and join after the advance party has reached Salt Creek. Two men are sent ahead of the advance party at a double time to take position on Hill 875 northeast of J. E. Daniels' place (*jf'*) and reconnoiter to the northeast and east.

Reasons. The patrol sent out on the south moves out far enough to get a good view from the hills from which an enemy could observe or fire into the column. There is no necessity of sending out flankers north of the road at first, because from the road itself a good view is obtained. Hills 875.5 and 875 give splendid points for observing all the ground to the north and east. (*Don't send flankers out unless they are necessary.*)

Required, 4. When the advance party reaches J. E. Daniels' house (*je'*) a civilian leaves the house and starts toward 15. What action does Sergeant B take?

Required, 5. When the advance party reaches Salt Creek bridge (*ig'*) the point signals "enemy in sight," and Private H reports that he saw about 6 or 8 mounted men ride up to the edge of the woods at Kern, halt a moment, and disappear. What action does Sergeant B take?

Answer. He at once sends a message back by Private H stating the facts. He then orders the advance party to move forward, hastens up to the point and directs it to continue the march, seeking cover of fences and ravines and hill top.

Required, 6. When the point reaches Schroeder (*jh'*) it receives fire from the orchard at Kern. What action is taken?

Answer. The men in the point are moved rapidly down the hill and gain shelter in the ravines leading toward Kern. Two squads are rapidly placed in line along the ridge west of Schroeder and under cover of their fire the remainder of the advance party run down the hill at 10 yards distance to join the point. A squad of this force is then hurried forward to

the Kern house. Here the squad is stopped by fire and Sergeant B deploys two more squads which advance by rushes and drive out the enemy, found to be 10 cavalymen. The squads left at Schroeder now join at double time and the advance party moves forward, without having delayed the march of the main body.

Problem No. 4 (Infantry).

Situation:

A Blue force of one regiment of infantry has outposts facing south on the line Pope Hill (*sm'*)—National cemetery (*pk'*)—E (*qh'*). A Red force is reported to have reached Soldiers' Home (3 miles south of Leavenworth) from the south at 7:00 o'clock this morning. Corporal A is directed by Sergeant B, in command of the left support at Rabbit Point (*tn'*), to take out a patrol toward the waterworks and south along the Esplanade (*xo'*) to the Terminal Bridge.

Required, 1. Give Sergeant B's orders to Corporal A.

Answer. "The enemy, strength unknown, was at Soldiers' Home at 7:00 o'clock this morning. Another patrol will advance along Grant avenue (*tm'*).

"Our outposts will remain here for the day.

"Select from the first section a patrol and reconnoiter this road (Farragut avenue) as far as the waterworks (*vm'*), thence by Esplanade to the Terminal Bridge, and report on the ground in our front. When you reach the Terminal Bridge return if no enemy is seen.

"Send reports here."

Required, 2. How many men does Corporal A select, and why? (Par. 30, p. 42.)

Answer. Five men are taken because the patrol is to reconnoiter, not to fight, and on account of the distance to go and lack of information of the enemy, 2 or 3 messages may have to be sent.

Required, 3. What equipment should Corporal A have? (Par. 31, p. 42.)

Required, 4. State the points to be noted by Corporal A in selecting his patrol and what inspection does he make? (Par. 34, p. 44.)

Answer. He selects privates C, D, E, F and G, on account of their bravery, attention to duty and discretion. He directs them to carry one meal in their haversacks, full canteen and fifty rounds of ammunition. He then inspects them as to their physical condition, sees that they have proper equipment and that nothing to rattle or glisten is carried.

Required, 5. What does Corporal A next do? (Par. 35, p. 44.)

Answer. He gives them their instructions as follows: "The enemy, strength unknown, was at Soldiers' Home (about three miles south of Leavenworth) at 7 o'clock this morning. There will be a friendly patrol along that road (pointing to Grant avenue). We are to reconnoiter along this road and down toward that bridge (pointing). Be very careful not to be seen, take advantage of all cover, and keep touch with C and myself on this road at the point of the patrol. In case we get separated meet at the waterworks (*vn'*)."

He then explains the signals to be used, and moves the patrol in close order out along the road until it passes the sentinel at the bridge XV (*un'*), to whom he gives the direction to be taken by the patrol.

Required, 6. Upon leaving XV, what formation would the patrol take, and reasons for same. (Par. 37, p. 45.)

Answer. Corporal A and Private C form the point on the road leading southwest of the waterworks; Private D moves on the left overlooking the railroad; Private E moves promptly up Corral creek (*um'*) to the top of Grant Hill (*um'*) to observe the country toward the southwest; Private F moves about 50 yards in rear of the point, followed at 50 yards by Private G.

Corporal A forms his patrol as stated because of the necessity of getting a view from the hill on each side. Only one man is sent out on each side because they can be plainly seen by the patrol on the road, and no connecting file is necessary. The distances taken along the road assure at least one man's escape, and Corporal A is in front to get a good view and to signal the flankers.

Problem No. 5 (Infantry).

Situation:

The head of the patrol is now at the bridge, XVI (*un'*) northwest of the waterworks.

Private E has reached the top of Grant Hill and signals the enemy in sight; the patrol halts and Corporal A moves out to meet Private E who is coming down toward the patrol. He says he saw three mounted men ride up to Grant and Metropolitan avenues (*wm'*) from the south and after looking north a moment move west.

Required, 1. Corporal A's action. (Pars. 44 and 45, pp. 48 and 52.)

Answer. Corporal A at once writes the following message and sends it back by Private E:

"No. 1.

To Commander Blue Left Support,
Rabbit Point.

Patrol, Company B,
Farragut Avenue,
Northwest of Waterworks,
10 May, '09, 8:30 A. M.

Three mounted Reds, seen by Private E. just now reconnoitered at Grant and Metropolitan avenues; they are moving west on Metropolitan avenue; the patrol will continue toward the Terminal Bridge.

A,
Corporal.

Reasons. The message is sent because this is the first time the enemy has been seen, and they have not been reported north of Soldiers' Home before. The message should state who saw the enemy, and the man seeing them should always carry the message telling of the facts. The patrol would not allow this small hostile patrol to stop its advance, but would proceed on its route cautiously to avoid being seen, and to see if the Red cavalymen are followed by others of the enemy.

Required, 2. Give the method of reconnoitering the buildings at the waterworks and coal mine. (Par. 61, p. 58.)

Answer. Private D carefully examines the east side of the enclosures and buildings, while Private C examines the west side. The remainder of the patrol halts concealed in the cut west of the north enclosure, until C and D signal no enemy in sight, whereupon the patrol moves forward along the road (XV—3rd St.) C and D advancing rapidly between the buildings to the town where they join the patrol.

Required, 3. Give the route followed by E from Grant Hill to the edge of Leavenworth.

Answer. He moves down the east slope of Grant Hill to the ravine just east of the old R. R. bed (*um'*) being careful to keep concealed from the direction of Leavenworth. He moves up the ravine, keeping a sharp lookout to the front, and moving rapidly until abreast, if he has fallen behind. He takes the branch ravine lying just west of Circus Hill (*vm'*), and moves up to its end. Here he halts and makes careful inspection of Metropolitan avenue and the street south into the city. Being sure the coast is clear, he darts across the narrow ridge south of Circus Hill to the ravine to the east and then joins the patrol. He reports to Corporal A any indication of the enemy he may have seen.

Problem No. 6 (Infantry).*Situation:*

A Blue force holds Fort Leavenworth (*om'*) in hostile country. Outposts occupy the line Salt Creek Hill (*gh'*)—13 (*ij'*)—Sheridan's Drive, (*mi'*) against the Reds advancing from the northwest.

At 4:30 P. M. June 25th, Sergeant A is given the following orders by Captain B, commanding the support:

"The enemy will probably reach Kickapoo late today. Our outposts extend as far north as Salt Creek Hill. There were six of our men prisoners at 45 (*dc'*) this afternoon at 1 o'clock, being held by 15 home guards at Kickapoo. Take . . . men from the company and move to Kickapoo, recapture the prisoners and gain all the information you can of the enemy north of there."

Required, 1. How many men does Captain B name, and why? (Par. 30, p. 42.)

Answer. Thirty men are assigned.

Reason. This is twice as many as the enemy holding the prisoners, and to secure secrecy no larger force than is absolutely necessary should be taken. This force will allow men to surround the enemy while the remainder rush them.

Required, 2. Give the order of Sergeant A to his patrol. (See 6th requirement Problem 4, p. 105, and Par. 37, p. 45.)

Required, 3. What route will the patrol take.

Answer. 11 (*jj'*)—13 (*ij'*)—Salt Creek Hill (*gh'*)—and along the edge of the woods east of the M. P. R. R. (*fg'*) as far as the bridge opposite Kickapoo Hill—thence up Kickapoo Hill toward 45 (*dc'*).

Reasons. Since the patrol's orders do not require any reconnaissance before reaching Kickapoo the shortest and most practical route is chosen. The route as far as Salt Creek Hill lies behind our outpost line and is thus protected. The main roads are avoided because they will be carefully watched by the enemy. The edge of the woods east of the M. P. Ry. (beginning about *ff'*) gives good cover and by moving to the bridge the patrol can probably sneak close in on the enemy and capture them by surprise.

Problem No. 7 (Infantry).*Situation:*

The patrol reaches the top of Kickapoo Hill (*cd'*). Sergeant A and Private C move cautiously to the top and see the six prisoners in the cem-

etery (cd') just west of Kickapoo Hill, and a Red sentinel at each corner. Just west of the cemetery are about 10 more Reds. No others are visible.

Required, 1. What decision does Sergeant A make and what does he do?

Answer. He decides to capture the enemy by surprise. He leaves Private C to watch and, moving cautiously back to his patrol, makes the following dispositions: Corporal D with 10 men to move up to Private C and cover the enemy, remaining concealed. He takes the remainder of the patrol with fixed bayonets around the northeast slope of Kickapoo Hill in the woods and moves up the ravine toward 29. When his detachment arrives within about 100 yards of the enemy, they charge bayonet and rush them. Corporal D's party at the same time rush in from the opposite side. (Note: The enemy are demoralized by the surprise and are captured without a shot being fired.)

Required, 2. What action does Sergeant A now take?

Answer. He causes the enemy to be kept apart while he and his non-commissioned officers question them separately. He then questions the Blue prisoners, and furnishing them the guns taken from the Reds, sends them and the captured Reds back to our line under Corporal D, with a written message giving the information secured from his questions. (Par. 49, p. 55.)

Required, 3. What does he then do?

Answer. Places his main body in concealment at the Cemetery (cd') and sends a patrol under Corporal H via 35—41—43, and one under Corporal F via 29—27—23 west to learn further of the enemy in execution of the second part of his orders.

The patrol under Corporal H sends back the following message:

No. 1.

Patrol Company A, 1st Infantry,
21 June, '09; 5:30 P. M.

Commander Expeditionary Patrol at 45:

A column of infantry is moving east about 1 mile west of Schweizer (aa'); about 800 yards in front of this body is another small body with 8 to 10 men 300 yards still farther east. It took the main body 2 min. 45 sec. to pass a point on the road. I remain in observation.

H,
Corporal."

Required 3. The size of the command reported by Corporal H and its formation. (Par. 47-b, p. 53.)

Answer. One battalion infantry (512 men), preceded by 1 section at ad-

vance guard. The advance guard having only advance party and point, $2\frac{3}{4}$ minutes \times 175 = 481 men in the main body, leaving about 32 men for the advance guard.

Problem No. 8 (Infantry).

General Situation.

A Blue force of one regiment of infantry has outposts facing south on the line Pope Hill (*sm'*) National Cemetery (*qk'*)—E (*qi'*). A Red force moving north reached Soldiers' Home at 7 o'clock this morning.

Special Situation:

Corporal B is chosen by Sergeant A, commander of the right support at the National Cemetery, to take a patrol south as far as 20th street (*yf'*) and Metropolitan avenue (*wh'*), to report on the ground along the route, and to reconnoiter the enemy. A friendly patrol moves along Sheridan's Drive (*i*)—Atchison Hill (*rg'*)—Southwest Hill (*uc'*), and one on Prison Lane (*rk'*).

Required, 1. Sergeant A's orders, verbatim (that is, word for word).

2. Give the various details attended to by Corporal B before he moves out with his patrol.
3. What is the formation of the patrol when its point is at E (*qh'*).
4. When the patrol reaches 14 (*ug'*), how are the intersecting roads reconnoitered?
5. Four mounted men are seen riding west at a walk at 64 (*wh'*). What action does Corporal A take?
6. Describe the ground passed over by the patrol.

Problem No. 9 (Infantry).

Situation:

The enemy is moving east toward Frenchman (*oc'*) and is expected to reach there early tomorrow. A company at 72 (*uj'*) forms the left support of an outpost in hostile country, on the line 70 (*vj'*)—National Cemetery (*qj'*). At 4 P. M. Sergeant A is ordered to take a patrol of 12 men and go to Frenchman and destroy the bridge there, and remain in observation in that vicinity all night.

Required, 1. His orders to the patrol.

2. The route the patrol will follow, and its formation crossing the Atchison Hill—Government Hill ridge.

3. Give the conduct of the patrol from Atchison Hill (*rg'*)—Government Hill (*tf'*) to its position at the bridge at Frenchman.

General Situation:

A Blue squadron is camped for the night at Waterworks (*vn'*), Fort Leavenworth, and has outposts on the line XIV (*un'*)—Grant Hill (*um'*)—Prison Hill (*wk'*). A Red force is reported to be advancing from the north on Kickapoo (*cb'*).

Problem No. 10 (Cavalry).

Special Situation:

Lieutenant A, commanding the left support on Prison Hill, at 5 P. M., directs Sergeant Jones to take a patrol of 5 men from his platoon and move via Atchison Cross (*ug'*) to the vicinity of Kickapoo and secure information of any enemy that may be in that locality. Another patrol is to go via Fort Leavenworth (*ol'*).

Required, 1. The order given by Lieutenant A, verbatim. (Pars. 33 and 35.)

Answer. "Sergeant Jones, the enemy is north of Kickapoo, moving on that place. The squadron will remain here tonight; Sergeant B will take a patrol through Fort Leavenworth.

"Select a patrol of 5 men from your platoon and move out via Frenchman's (*oc'*) toward Kickapoo.

"Secure any information you can of the enemy in that locality.

"Report on the condition of the bridges between here and 47 (*fd'*).

"You may have to stay out over night.

"Send messages here."

Sergeant Jones selects five good men, directs them to take one cooked ration each and canteen full of water. He inspects the men and horses carefully; sees that no horse of conspicuous color or that neighs is taken. Explains the orders to his men, etc., as was done in the infantry patrol.

Required, 2. What route does the patrol take, and why?

Answer. Metropolitan avenue (*w*)—70 (*vj'*)—72 (*vj'*)—14 (*ug'*)—Frenchman (*oc'*)—17 (*jc'*)—47 (*ec'*). *Reasons.* The enemy is distant and Kickapoo, the objective of the patrol, is seen from the map, which Sergeant Jones has, to be over an hour's ride at a walk and trot. It is not at all probable that the enemy will be met until the patrol reaches the vicinity of Kickapoo and Sergeant Jones decides to take the shortest and best road

though it is a main highway, instead of Sheridan's Drive (j) or the F (qg')—15 (jg') lane.

It is always well for a patrol to avoid main highways when the enemy is near, especially in hostile country, but here the time saved more than justifies the use of the direct route.

Problem No. 11 (Cavalry).

Same situation as Problem 1.

Required, 1. The formation and conduct of the patrol as far as Frenchman's.

Answer. Sergeant Jones determines to move at a walk and trot (5 miles per hour) in order to reach the vicinity of Kickapoo and take up a position of observation before night. Sergeant Jones and Private B are in the lead, 2 men about 100 yards to the rear, the remaining 2 men about 75 yards in the rear of these. They move out at a trot along the road until Atchison Cross is reached. The two cross roads are reconnoitered without halting the patrol, in as much as from the cross roads a good view is had north and south.

From Atchison Cross to 16 (sf') the patrol moves at a walk, being up a slope from 4 to 6 degrees. Usually such a place would be rushed through, but the distance of the enemy makes this unnecessary. No scouting is done off the road through the woods, because of the distance of the enemy. On reaching the top of the hill the patrol is halted while Sergeant Jones moves up to the high ground south of the road at the crest, and in concealment searches with his glasses the road as far as Frenchman's, especially the village beyond G (qf'). Seeing no signs of the enemy he moves the patrol down the hill at a walk until the cut is passed and there takes a fast trot, so as to avoid being long in a position where they could be seen from the direction of Kickapoo. The same formation and gait are maintained as far as Gauss' (pd'), where a walk is taken to rest the horses and to gain opportunity to see if any enemy are holding the bridge at Frenchman's.

Situation:

Just as the patrol comes to a walk Sergeant Jones sees what appears to be a dismounted patrol moving south over the ridge about 650 yards north of Frenchman's. He can see three men.

Required, 2. Action taken by Sergeant Jones.

Answer. The patrol is moved into the orchard just off the road, while

Sergeant Jones moves quickly to the top of the hill and, concealed by the trees, examines the road north to see if the 3 men are followed by others forming part of a larger patrol or of a column. He finds the three men are not followed.

Required, 3. What does he do next?

Answer. He determines to capture the patrol by surprise. He has the horses led over south of the orchard hill so as not to be visible to the enemy. He then distributes his men along the north edge of the orchard, himself nearest the bridge, 2 men 75 yards back along the road toward G (qf'), then 2 men 75 yards farther along toward G. As the third man comes opposite him, Sergeant Jones cries "Halt" which is the signal for the other parties to similarly hold up their men.

Reasons. Sergeant Jones might either capture the hostile patrol or let it pass, and then proceed on his road. Since they are the first enemy seen and there is such a good chance to capture them, and as they may furnish definite information of the enemy's main force, he decides as stated. There is an objection in capturing them that he will have to send one or two men to take them to camp. The patrol is placed as described above so as to have two men opposite each of the enemy, except for Sergeant Jones, who is alone. By thus covering each man of the hostile patrol by two of our men, they will at once see the folly of an effort to escape and no shot need be fired. One man is holding the horses.

Problem No. 12 (Cavalry).

Required:

1. What action does Sergeant Jones take before leaving the vicinity of Frenchman's.

2. Give the formation and conduct of the patrol after leaving here.

3. Give the report submitted by Sergeant Jones under his instructions in regard to bridges. (Par. 65, p. 59.)

At 6:30 P. M. (it is dark at 7:30) the patrol reaches 17 (jc').

4. Give the route followed from here and the disposition of the patrol made for the night.

Problem No. 13 (Cavalry).

The Missouri River is the boundary between hostile countries.

A Blue separate brigade (3 regiments infantry, 1 squadron cavalry, 1 battery field artillery) is moving from Winchester (19 miles west of Leav-

enworth) to seize the Rock Island bridge (q) across the Missouri River at Fort Leavenworth. The cavalry squadron is camped at Lowemont, 8 miles west of Leavenworth, for night June 4-5. At 3 P. M. Sergeant Jones is directed to take a patrol of six men and move via the Rock Island bridge into Missouri and gain information of the enemy reported to be now just east of the river.

Required, 1. Give the formation of the patrol when it first comes on the map.

Required, 2. Give the conduct of the patrol from Mottin's (oa') to G (qf').

At Frenchman's, Sergeant Jones met a farmer coming from Fort Leavenworth, who said about 200 hostile cavalry were seen just east of the Missouri about 2 P. M., moving towards the Terminal Bridge (z).

Required, 3. Action of Sergeant Jones. (Does he hold the man? Does he send a message? Does he change his plans or direction of march?)

The patrol reaches the top of the hill, Sheridan's Drive—Government Hill (tf').

Required, 4. What action does Sergeant Jones take before proceeding east?

FLANK GUARDS.

99. The flanks of a column are ordinarily protected by the advance guard, which sends out patrols to carefully examine the country on both sides of the line of march. In some cases, however, the direction of march of the column is such that there is great danger of the enemy's striking it in flank and some special provision is necessary to furnish additional security on the threatened flank. This is done by having a detachment, called a *flank guard*, march off the exposed flank. The flank guard usually follows a road, parallel to the one on which the column is marching and at least 1,000 yards (effective rifle range) beyond it. If hostile artillery is feared this distance is much greater.

The flank guard regulates its march so as to continue abreast of the advance guard of the main column. *It takes a formation similar to an advance guard*, does most of its patrolling to the front and on the exposed flank, and keeps in constant touch with the main column by means of mounted or dismounted messengers.

In case the enemy is encountered the flank guard drives him off if practicable or takes up a defensive position, protecting the march of the main column, and preventing the enemy from disturbing the latter's march.

REAR GUARD.

100. Definition and Duties. A rear guard is a detachment of a marching column following in rear to protect the main column from being surprised and to prevent the march from being delayed or interrupted.

101. *When the main column is marching towards the enemy* the rear guard is very small and its duties relatively unimportant. It is principally occupied in gathering up stragglers.

102. *When the main column is marching away from the enemy (retreating)* the rear guard is all important. It covers the retreat of the main body, preventing the enemy from harassing or delaying its march.

103. Strength. The strength of a rear guard is slightly greater than that of an advance guard, as it cannot expect, like the latter, to be reinforced in case it is attacked, as the main column is marching away from it and avoiding a fight.

Form of Order. The rear guard commander, on the receipt of the retreat order, issues a *rear guard order*, according to the following general form:

Field Orders	(Title)	}
No.-----	(Place)	
Troops	(Date and hour)	

(a) Reserve—in order of march (Troops)	1. (Information of enemy and of our supporting troops.)
(b) Support: (Commander) (Troops)	2. (Plan of commander—duty of rear guard.)
(c) Rear Cavalry: (Commander) (Troops)	3. (a) (Instructions for reserve—place and time of departure, or approximate distance from main body—reconnaissance.)
(d) Right (left) Flank Guard: (Commander) (Troops)	(b) (Instructions for support—place and time of departure or distance from reserve—any special reconnaissance.)
	(c) (Instructions for rear cavalry—place and time of departure, road or country to be covered—special mission.)
	(d) (Instructions for flank guard—place and time of departure, route, special mission.)

4. (Instructions for field train when necessary—usually to join train of main body.)
5. (Place of commander or where messages may be sent.)

(Signature.)

(How and to whom issued.)

104. The distance of a rear guard from the main body and its formation are similar to those of an advance guard. The elements corresponding to the *advance cavalry*, *the point*, and *the advance party* of an advance guard are termed the *rear cavalry*, *rear point* and *rear party*, respectively. The support and reserve retain the same designations.

105. A rear guard formed during an engagement to cover the withdrawal or retreat of the main body, may first be compelled to take up a defensive position behind which the main body forms up and moves off. It may be forced to withdraw from this position by successive skirmish lines, gradually forming up in column on the road as it clears itself from fighting contact with the enemy.

106. The rate of march of the rear guard depends upon that of the main body. The main body may be much disorganized and fatigued, necessitating long halts and a slow marching rate.

107. Action of the Rear Guard. The withdrawal of defeated troops is delayed, if possible, until night. If it becomes necessary to begin a retreat while an engagement is in progress, the rear guard is organized and takes up a defensive position generally behind the fighting line; the latter then falls back and assembles under cover of the rear guard.

The rear cavalry gives away before the enemy's pursuit only when absolutely necessary, maintains communication with and sends information to the rear guard commander, and pays special attention to the weak points in the retreat, namely, the flanks. It makes use of every kind of action of which it is capable, according to the situation, and unless greatly outnumbered by hostile cavalry, it causes considerable delay to the enemy.

When the enemy is conducting an energetic pursuit the rear guard effects its withdrawal by taking up a succession of defensive positions (that is, where the nature of the ground enables the rear guard to defend itself well) and compelling the enemy to attack or turn them. (It should be understood that these successive defensive positions must, in the case of a large force, be from two to four miles apart and in the case of a small force at least one-half mile apart—not a few hundred yards as is frequently attempted in peace maneuvers.)

When the enemy's dispositions for attack are nearly completed, the rear guard begins to fall back, the cavalry on the flanks being usually the last to leave. The commander designates a part of the rear guard to cover the withdrawal of the remainder; the latter then falls back to a new position in rear, and in turn covers the withdrawal of the troops in front.

These operations compel the enemy continually to deploy or make turning movements, and constantly retard his advance:

The pursuit may be further delayed by obstacles placed in the enemy's path; bridges are burned or blown up; boats removed or destroyed; fords and roads obstructed; tracks torn up; telegraph lines cut, and houses, villages, woods and fields fired. Demolitions and obstructions are prepared by engineers, assisted, if necessary, by other troops detailed from the reserve, and are completed by the mounted engineers of the rear party at the last moment.

The instructions of the supreme commander govern in the demolition of important structures.

OUTPOSTS.

108. Definition and Duties. An outpost is a detachment of a stationary (encamped or bivouacked) force thrown out in the direction of the enemy to protect the main body from being surprised and to insure its undisturbed rest. It is in reality merely a stationary advance guard.

Specifically its duties are:

(a) To observe towards the front and flanks by patrols and stationary sentinels, in order to locate the enemy's whereabouts and learn promptly of his movements, if near.

(b) To prevent the main body from being observed or disturbed.

(c) In case of attack to check the enemy long enough to enable the main body to make the necessary dispositions.

109. The vigilance of outpost troops must be unceasing, but they should avoid bringing on combats or unnecessarily alarming the command. Firing disturbs the rest of the troops and if frequently indulged in ceases to be a warning. No trumpet signals, except "to arms" or "to horse," are sounded, and all unnecessary noises are avoided.

110. The strength of the outpost varies with conditions of ground and proximity (nearness) to the enemy, but rarely exceeds one-sixth of the entire command, and should be as small as safety will permit. Troops at a halt are supposed to be resting, night or day, and the fewer on outpost the more troops will there be resting, thus increasing their strength for prospective marches and encounters with the enemy. Furthermore, outpost duty is the most fatiguing work a soldier performs, particularly as the outpost for the afternoon and night is usually taken from the advance guard of the morning, which has already performed a trying tour

of duty. It is, therefore, evident that the commander should use careful judgment in determining the strength of the outpost and the chiefs of the various outpost subdivisions should be equally careful in disposing their men so as to permit the greatest possible number to sleep undisturbed, *but always considering the safety of the main body as the chief duty.*

111. The distance at which the outpost is established beyond the camp or bivouac of the main body depends largely on the strength and composition of the command. The larger the command, the greater the distance—two to three miles in the case of a division, where the outpost must be sufficiently far to the front to prevent hostile artillery from firing into the camp. In small commands the distance is greatly reduced, being sufficient to prevent observation of the camp by the enemy and to give time for the main body to form up and deploy in case of attack.

Examples of strength of outposts and distance to main body:

<i>Command</i>	<i>Outpost</i>	<i>Distance (yds.)</i>
		(From reserve of outpost to the main body.)
Inf. $\frac{1}{2}$ company (50 men)	1 squad	500 to 1,000
Cav. $\frac{1}{2}$ troop (45 men)	8 men	1,000 to 1,500
Inf. company of 108 men	2 squads	500 to 1,000
Cav. troop of 86 men	16 men	1,000 to 1,500
Infantry battalion	$\frac{1}{2}$ to 1 company	800 to 1,500
Cavalry squadron	$\frac{1}{2}$ to 1 troop	1,200 to 1,800

These are not furnished as fixed numbers and distances, but are merely to give the student an approximate, concrete idea.

112. Small Commands. In very small commands, as a platoon, for example, the outpost really consists principally of moving and stationary patrols and has little power of actual resistance, serving primarily to give timely warning of a hostile advance. If it can possibly be avoided, a unit (squad, platoon, company or battalion) should never be split up in forming a group.

113. If cavalry forms part of the outpost the demands on the outpost infantry, particularly as to patrolling, are much reduced during the day; also at night, if cavalry patrols remain well out to the front.

Formation of Outposts.

114. Subdivisions. As in the case of an advance guard, the outpost of a large force like a brigade or division is subdivided into a number of groups or elements, gradually increasing in size from front to rear. In case of sudden attack, each group is charged with holding the enemy in check until the larger element, next in rear, has time to deploy and prepare for action. As has already been fully explained, the smaller the command, the fewer the subdivisions.

Subdivisions of an Outpost.

	<i>Distance to next element in rear.</i>
Advance cavalry	2 to 6 miles
Supports { Sentinels (furnished by outguard).....	20 to 40 yds.
(Generally { Outguards—formerly called “pickets” (gener-	
two or { ally more than one).....	200 to 500 yds.
more) { Support proper (furnishes majority of pa-	
{ trols)	400 to 800 yds
Reserve (usually omitted in small commands)	½ to 2 miles

(The distances vary principally with the size of the command and the character of the country.)

1. In front, reconnoitering towards the enemy, is the *advance cavalry*;
2. Then comes the *line of observation* occupied by the *outguards*, with their *sentinels* a short distance in front;
3. In rear of the line of observation is the *line of resistance* (the best defensive position in the immediate vicinity), on or near which the *main bodies of the supports* are posted, and which becomes the *first line of battle* if the enemy makes a determined advance;
4. In rear of the line of resistance, centrally located, is the *reserve*;
5. Still further in rear is the *main body*.

The nature of the country may cause the *line of observation* practically to coincide with the *line of resistance*. It is also possible for the line of resistance to be in advance of the *line of observation*; for example, a low range of hills crossing the enemy's line of advance might be occupied by placing trenches along the foot to secure a grazing fire, sentinels to watch for the enemy's approach being posted along the crest in rear.

115. The advance cavalry is that part of the outpost sent out in

front of all foot troops. It generally operates two to six miles beyond the outpost infantry, reconnoitering far to the front and flanks in order to guard the camp against surprise by artillery fire and to give early information of the enemy's movements.

After dusk the bulk of the cavalry usually withdraws to a camp in rear of the outpost reserve, where it can rest securely after the day's hard work and the horses can be fresh for the next day. Several mounted patrols are usually left for the night at junctions or forks on the principal roads to the front, from one to four miles beyond the infantry line of observation.

116. Supports—(a) The supports constitute the principal elements or groups of an outpost, and in outposts consisting of a battalion or more they usually comprise about one-half the infantry. *In outposts of commands of a regiment or less the technical designation "support" includes the entire outpost, the main body being the real reserve.*

(b) The supports are numbered from right to left and definitely assigned to the section or amount of front they are to cover. As each support arrives upon the ground it is to occupy, its commander (who should precede it when practicable, and make a rapid examination of the ground), sends out patrols to give temporary security, and then sends out *observation groups*, varying in size from four men to a platoon, generally a squad, to watch the country in the direction of the enemy. These groups are called *outguards* and are just sufficient in number to cover the front of the supports and to connect, where necessary, with the outguards of adjoining supports.

The line occupied by the outguards is the line of observation.

(c) After establishing the outguards the commander selects a defensive position on the general line of resistance, from which not only can he command the approaches but where he can also give assistance to the adjoining supports; he then gives instructions in regard to the intrenchments and obstacles, after which makes a more careful reconnaissance of the section assigned him; corrects the position of the outguards, if necessary; gives them instructions as to their duties in case of attack or when strangers approach their posts; points out lines of retreat in case they are compelled to fall back to the supports, selects, if necessary, places for additional posts to be occupied at night or during fog; sees that suitable connections are made between him and the adjoining outguards, and between his support and the adjoining supports; and questions subordinate commanders to test their grasp of the situation and knowledge of their

duties. On returning to the support he sends a report with a *sketch* to the outpost commander, showing the dispositions made.

After the line of observation has been established, the support stacks arms and the men are permitted to remove their equipments, except cartridge belts. One or more sentinels are posted over these supports, and they guard the property and watch for signals from the outguards. Fires are concealed as much as possible and the messing is done by reliefs. Mounted messengers ordinarily do not unsaddle; they rest, water and feed as directed.

(d) *There are generally two or more supports*, as the enemy must usually confine his movements to the roads, particularly in the case of detachments of a company or more, the supports are usually posted on the roads leading in the direction of the enemy. Just in rear of where a road forks to the front is the best location, as it covers both roads from one position. Of course, the support may bivouac under cover just off the road, with its sentinel posted at the roadside.

What follows regarding sentinels and detached posts, patrols and outguards, is of particular importance to noncommissioned officers, as it deals with the elements of the outpost that they command.

117. *The following patrols are usually sent out from the main bodies of the supports:*

(a) Patrols of from three men to a squad are sent along the *roads and trails in the direction of the enemy*, for a distance of from one to five miles, depending on how close the enemy is supposed to be, whether or not there is any advance cavalry out, and how long the outpost has been in position. The extreme right and left supports send patrols well out on the roads to the flanks. These patrols generally operate continuously; as soon as one returns from the front, or possibly even before it returns, another goes out in the same general direction to cover the same country. Frequently a patrol is sent out along a road to the front for two or three miles with orders to remain out until some stated time—for example, 4 P. M., dusk or dawn. It sends in important information, and remains out near the extremity of its route, keeping a close watch on the surrounding country.

An effort should always be made to secure and maintain contact with the enemy, if within a reasonable distance, in order that his movements or lack of movement may be constantly watched and reported on. *The usual tendency is towards a failure to send these patrols far enough to the front and for the patrol leader to overestimate the distance he has*

traveled. A mile through strange country with the ever-present possibility of encountering the enemy, seems three miles to the novice.

At night the patrols generally confine their movements to the roads, usually remaining quietly on the alert near the most advanced point of their route to the front.

The majority of such patrols are sent out to secure information of the enemy—*reconnoitering patrols*—and they avoid fighting and hostile patrols, endeavoring to get in touch with the enemy's main force. Other patrols are sometimes sent out to prevent hostile detachments from approaching the outposts; they endeavor to locate the hostile patrols, drive them back, preventing them from gaining any vantage point from which they can observe the outpost line. These are called *combat patrols* and have an entirely different *mission* from *reconnoitering patrols*.

(b) Patrols of from two men to a squad, usually two men, are sent from the support *around the line of its outguards, connecting with the outguards of the adjacent supports*, if practicable. These are "*visiting patrols*," and they serve to keep the outguards of a support in touch with it and with each other; to keep the commander of a support in touch with his outguards and the adjacent supports; and to reconnoiter the ground between the outguards. Since a hostile force of any size is practically forced to keep to the roads, there are rarely ever any supports and very few outguards posted off the roads, the intervals being covered by patrols, as just described.

118. Detail for patrols. Since for every patrol of four men, twelve are required (3 reliefs of 4 men each), the importance of sending out just enough men and not one more than is actually needed, can readily be understood. As fast as one visiting patrol completes its round, another should usually be sent out, possibly going the rounds by a slightly different route or in the reverse direction. The same generally applies to the reconnoitering and combat patrols, though frequently they are sent out for the entire day, afternoon or night, and no 2d and 3d relief is required. Three reliefs are required for the sentinel or sentinels at the post of the supports, so care should be taken to establish but one post if it can do all that is required. It should not be considered that every man in the support should be on duty or on a relief for an outguard, a patrol or sentinel post. There should be as many men as possible in the main body of a support (this term is used to distinguish this body from the support proper, which includes the outguards and their sentinels) who have no duty other than being instantly available in case of attack.

119. Outguards. Outguards vary in size from four men to a platoon, but are no larger than necessary to watch the country, drive back small hostile patrols, and furnish reliefs for the sentinels. Outguards of eight men (*one squad*) are most convenient, as they furnish besides the corporal in command, relief for double sentinels and an extra man for messenger duty and to assist in patrolling. When only a single sentinel is used, as is the case in the day time, four extra men are available. Furthermore, it is preferable to use a complete unit as a squad, rather than to break up one

120. Each support sends forward one or more outguards, depending on the extent of front it has to cover, the character of the country, number of roads and trails leading to the front, etc. *If from one position the entire front covered by the support can be observed, one outguard with one sentinel would be sufficient and proper.* The outguards are usually posted on the roads and trails leading towards the enemy and are numbered from right to left for each support. If the same force forms the outpost for more than 24 hours, the main body of the support furnishes fresh outguards to relieve those which have been on duty 24 hours. The latter take their place with the main body of the support. If the advance guard for the morning march forms the outpost for the afternoon and night only, the outguards first posted are not relieved until the outpost is relieved.

121. The duty of the outguards is to maintain uninterrupted observation of the ground in front and on the flanks; to report promptly hostile movements and other information relating to the enemy; to prevent unauthorized persons from crossing the line of observation; to drive off small parties of the enemy, and to make temporary resistance to larger bodies.

122. When an outguard reaches the line of observation, it takes a concealed position where the men are allowed to rest, and posts one or more sentinels a few yards in advance to overlook the country. Single sentinels are used in open country in the day time; double sentinels in close country in thick weather, at night or when special vigilance is necessary.

123. The intervals between outguards and their distances from the supports depend upon the situation and the nature of the ground. In small outposts the distance from the support to outguard is from 400 to 800 yards. The line of observation is not necessarily continuous, but ground over which the enemy could approach must be carefully guarded.

At night it may be necessary to push one or more of the outguards farther to the front.

124. When necessary, outguards patrol along the line of observation between the posts; *patrolling to the front is performed from the support.* Communication with adjoining outguards and with the support is maintained by means of signals, messengers or visiting patrols.

When resting, members of the outguard keep their weapons in position for immediate use and do not remove their equipments. Fires are not permitted, unless in cold weather they become necessary, and then they must be concealed.

The outpost of a small command may consist of outguards only, without supports or reserve, part of the main body remaining on the alert.

125. Sentinels. If practicable, troops on outpost duty are concealed and all movements made so as to avoid observation by the enemy; sentinels are posted so as to have a clear view to the front and if practicable (though it is rarely possible) to be able, by day, to see the sentinels of the adjoining outguards. Double sentinels are posted near enough to each other to be able to communicate easily in ordinary voice.

Sentinels are generally on duty two hours out of six. For every sentinel and for every patrol there should be at least three reliefs; therefore, one-third the strength of the outguards gives the greatest number of men that should be on duty as sentinels and patrols at one time.

Skillful selection of the posts of sentinels increases their field of observation. High points, under cover, are advantageous by night as well as by day; they increase the range of vision and afford greater facilities for seeing lights and hearing noises. Observers with good field glasses may be placed on high buildings, on church steeples or in high trees.

Glittering objects on uniform or equipment should be concealed. It is seldom necessary to fix bayonets, except at night, in dense fog, or in very close country.

Reliefs, visiting patrols, and inspecting officers, approach sentinels from the rear, remaining under cover if possible.

126. The instructions given a sentinel on the line of observation embrace the following:

a. Where the enemy is or is supposed to be and the direction from which he may be expected to come; the names of villages, streams and prominent features in sight and where the roads lead.

b. The number (if any) of his post, and the number of his and the ad-

joining outguards; the position of the support; the line of retreat to be followed if the outguard is compelled to fall back; the position of advance detachments and whether friendly patrols are operating in front.

c. He watches to the front and flanks without intermission, and devotes special attention to unusual or suspicious occurrences; if he sees indications of the enemy, he at once notifies the commander of the outguard; in case of imminent danger or when an attack is made, he gives the alarm by firing rapidly.

d. By day, officers, noncommissioned officers and detachments recognized as parts of the outposts and officers known to have authority to do so, are allowed to pass in and out; all others are detained and the commander of the outguard notified.

e. At night, when persons approach his post, the sentinel comes to a ready, halts them and notifies the outguard commander; the latter challenges, learns who they are, and acts according to circumstances.

f. Individuals who fail to halt, or otherwise disobey a sentinel, are fired upon after a second warning or sooner if they attempt to attack or escape.

g. Deserters are required to lay down their arms, and a patrol is sent out to bring them in. Deserters pursued by the enemy are ordered to drop their arms and an alarm is given; if they fail to obey they are fired upon.

h. Bearers of flags of truce and their escorts are halted and required to face outwards; they are then blindfolded and disposed of in accordance with instructions from the support commander.

i. At night a sentinel stands practically in the same spot, moving about for purposes of observation only; he does not sit or lie down unless authorized to do so. In the day time he makes use of natural or artificial cover and assumes such positions as give him the best field of view. He informs passing patrols of what he has seen. His weapon is habitually loaded and locked and carried at will.

(Note: Troops on outpost duty pay no compliments, and soldiers salute only when they address, or are addressed by a superior.)

These instructions for a sentinel are not to be blindly memorized. On reading them over carefully it will be seen that it is all plain common sense and very much what any reasonable man would want to know or do under such circumstances.

127. Detached Posts. Detached posts are practically the same as the supports of an outpost, but occupy positions at some distance from the general line of resistance. They may be sent out to hold points which

are of importance to the outpost cavalry, such as a ford or a junction of roads; or to occupy positions especially favorable for observation, but too far to the front to be included in the line of observation; or to protect flanks of the outpost position. Such posts are generally established by the outpost commander, but a support commander might find it necessary to establish a post practically detached from the rest of his command. They usually vary in strength from a squad to a platoon.

128. Reserve. The reserve forms a general support for the line of resistance. It is therefore centrally located near the junction of roads coming from the direction of the enemy, and in concealment if practicable.

Of the troops detailed for outpost duty, about one-half of the infantry, generally all of the artillery, and the cavalry not otherwise employed, are assigned to the reserve.

The arms are stacked and the equipments (except cartridge belts) may be removed. Roads communicating with the supports are opened.

When necessary, the outpost order states what is to be done in case of attack, designates places of assembly and provides for interior guards. Interior guards are posted in the camp of the reserve or main body to maintain order, and furnish additional security. Additional instructions may be given for messing, feeding, watering, etc. In the vicinity of the enemy or at night a portion of the infantry may be required to remain under arms, the cavalry to hold their horses (cinches loosened), and the artillery to remain in harness, or take up a combat position.

In case of alarm, the reserve prepares for action without delay, and word is sent to the main body. In combat, the reserve reinforces the line of resistance, and if unable to check the enemy until the arrival of the main body, delays him as much as possible.

The distance of the reserve from the line of resistance varies, but is generally about half a mile; in outposts of four companies or less this distance may be as small as 400 yards.

The distance from the main body to the reserve varies with the size of the former, the nature of the terrain, the situation, etc.

129. Examining Posts. An examining post is a small detachment under the command of an officer or a noncommissioned officer, stationed at some convenient point to examine strangers brought in by the outguards or patrols. When they are used, strangers approaching the line of observation are passed along the line to an examining post.

No one except the commander is allowed to speak to persons brought

to an examining post. Prisoners and deserters are at once sent under guard to the rear.

130. Cavalry Outpost. Independent cavalry covering a command or on special missions, and occasionally the advance cavalry of a mixed command, bivouac when night overtakes them, and in such cases furnish their own outposts. The outposts are established, in the main, in accordance with the foregoing principles, care being taken to confine outpost work to the lowest limits consistent with safety. No precaution, however, should be omitted, as the cavalry is generally in close proximity to the enemy, and often in territory where the inhabitants are hostile.

The line of resistance is occupied by the supports, the latter sending out the necessary outguards and patrols. Each outguard furnishes its own vedettes (mounted sentinels), or sentinels. Due to the mobility of cavalry, the distances are generally greater than in an outpost for a mixed command. An outguard of four troopers is convenient for the day time, but should be doubled at night, and at important points made even stronger. The sentinels are generally dismounted, their horses being left with those of the outguards.

Mounted cavalry at night can offer little resistance; the supports and outguards are therefore generally dismounted, the horses being under cover in rear, and the positions are strengthened by intrenchments and obstacles. By holding villages, bridges, defiles, etc., with dismounted rifle fire, cavalry can greatly delay a superior force.

There should always be easy communication along the line of resistance to enable the cavalry to concentrate at a threatened point.

A support of one squadron covers with its outposts a section rarely longer than two miles.

As such a line is of necessity weak, the principal reliance is placed on distant patrolling. If threatened by infantry, timely information enables the threatened point to be reinforced, or the cavalry to withdraw to a place of safety. If there is danger from hostile cavalry, the roads in front are blocked at suitable points, such as bridges, fords, defiles, etc., by a succession of obstacles and are defended by a few dismounted men. When compelled to fall back these men mount and ride rapidly to the next obstacle in rear and there take up a new position. As the march of cavalry at night is, as a rule, confined to roads, such tactics seriously delay its advance.

In accordance with the situation and the orders they have received, the support commanders arrange for feeding, watering, cooking, resting and

patrolling. During the night the horses of the outguards remain saddled and bridled. During the day time cinches may be loosened, one-third of the horses at a time. Feeding and watering are done by reliefs. Horses being fed are removed a short distance from the others.

Independent cavalry generally remains in outpost position for the night only, its advance being resumed on the following day; if stopped by the enemy, it is drawn off to the flanks upon the approach of its own infantry.

Establishing the Outpost.

131. On receipt of the *halt order* from the commander of the main column, naming the camp ground, the outpost commander issues the outpost order. This order gives the approximate line of resistance to be held, divides the outpost into its tactical components (advance cavalry, supports, etc.) and gives the necessary instructions for each.

Outpost orders are issued in the following form:

- | | |
|--------------|-----------------|
| Field Orders | (Title) |
| No.----- | (Place) |
| Troops | (Date and hour) |
- (a) Advance Cavalry: 1. (Information of the enemy and of our supporting troops.)
(Commander)
(Troops)
 - (b) Support: 2. (Plan of commander—to establish outpost, approximate
No. 1 (Commander) line of resistance.)
(Troops)
 - No. 2 (Commander) 3. (a) (Instructions for advance cavalry—contact with
(Troops) enemy, roads or country to be specially watched, special mission.)
 - No. 3 (Commander) (b) (Instructions for support—positions they are to
(Troops) occupy, and sections of line of resistance which they are to hold, intrenching, etc.)
 - (c) Detached Post: (c) (Instructions for detached posts—position to be
(Commander) occupied, duties, amount of resistance.)
(Troops)
 - (d) Reserve: (d) (Instruction for reserve—location, observation of
(Commander) flanks, conduct in case of attack, duties of special troops.)
(Troops)
 4. (Instructions for field train if it has accompanied the outpost.)
 5. (Place of commander or where messages may be sent.)

(Signature.)

(How and to whom issued.)

(Note: In the case of a small outpost the order is usually verbal.)

The reserve, supports and detached posts proceed to their respective positions by the shortest routes, providing for their own security.

As soon as practicable the outpost commander makes a careful inspection of the outpost position and orders such changes in the arrangements as he deems necessary. As the movement of troops across country, especially at night, is difficult, he places the supports so as to command the roads. For this reason, when dividing the line of resistance into sections, he is careful to see that the dividing lines are not on roads or where the enemy can readily approach.

132. Communication. Communication between the subdivisions of an outpost and between the reserve and the main body, is maintained by patrols, messengers, wire and signals.

133. Changes for the Night. In civilized warfare, it is seldom necessary to draw the outpost closer to the main body at night in order to diminish the front; nor is it necessary to strengthen the line of observation, as the enemy's advance in force must be confined to the roads. The latter are therefore strongly occupied, the intervening ground being diligently patrolled.

In very open country or in war with savage or semi-civilized people familiar with the terrain, special precautions are necessary.

134. Relieving the Outpost. Ordinarily outposts are not kept on duty longer than twenty-four hours. In temporary camps or bivouac they are generally relieved every morning. After a day's advance the outpost for the night is usually relieved the following morning when the support of the new advance guard passes the line of resistance. In retreat the outpost for the night usually forms the rear guard for the following day, and is relieved when it passes the line of observation of the new outpost. Evening twilight and shortly before dawn are hours of special danger.

Outguards that have become familiar with the country during the day time should remain on duty that night. Sentinels are relieved once in two hours, or oftener, depending on the weather. The work of patrols is regulated by the support commander.

Commanders of the various fractions of an outpost turn over their instructions and special orders, written and verbal, to their successors, together with the latest information of the enemy, and a description of the important features of the country. When practicable the first patrols sent out by the new outpost are accompanied by members of the old outpost who are familiar with the terrain. When relieved the old outguards re-

turn to their supports, the supports to the reserve and the latter to the main body; or, if more convenient, the supports and reserves return to the main body independently, each by the shortest route.

When relieved by an advance guard, the outpost troops ordinarily join their units as the column passes.

OUTPOST PROBLEMS.

Problem No. 1 (Infantry).

Lieutenant (to two squads of his company): Two battalions of our regiment have camped by Baker's Pond (Elementary Map) for the night. It is now 3 P. M. on a rainy day in August. The enemy is thought to be about five miles to the south of us. Our platoon is the left support of the outpost and is stationed at the road fork on the Chester Pike, by the Mason house. The Twin Hills-Lone Hill ridge is taken care of by other troops. Corporal Baker, where do you think I should place outguards?

Corporal Baker: One at the junction of the Mills farm lane and the Chester Pike, and one at the steel railroad trestle over Sandy Creek. (Pars. 116-b, 119 and 123, pp. 119 and 122.)

Lieutenant: Those positions are both too far from the support, almost a half mile, but they cover the two main avenues of approach and there is no good place for a position nearer the support. A position farther north of the Mills farm lane would have its view obstructed by the wall and trees along the lane and the wall would be a bad thing to leave unoccupied such a short distance to your front. So in this case, in spite of the excessive distances from the support, I think the two positions are well chosen. Each should be an outguard of a squad, for in the day time, in addition to furnishing a sentinel to observe to the front, they should have some power of resistance, particularly at the trestle. At night they should each have one double sentinel post. This requires three reliefs of two men each, which, with the corporal, only leaves one extra man, who can be used as a messenger. (Par. 119, p. 122.)

Corporal Baker, I order you to take your squad and post it as Outguard No. 1, at the junction of this (Chester) pike and that farm lane (Mills farm) in front. Corporal Davis' squad will be Outguard No. 2, at the railroad trestle over there (pointing). Friendly troops will be on the ridge to the east of your position. Your meals will be cooked here and sent to you.

Explain how you post your squad.

Corporal Baker: I order Smith to double time 150 yards to the front

and act as point for the squad. I then march the squad down to its position, keeping Smith about 200 yards in front until I have arranged everything. I then post Brown under cover of the trees along the lane where he can look down the road as far as possible (Pars. 123 and 125, pp. 122 and 123), and I tell him, "Brown, you are to take post here, keeping a sharp lookout to the front and flanks. The enemy is thought to be about five miles south (pointing) of us. This is the Chester Pike. That creek over there is Sandy Creek. Salem is about a mile and three-quarters down this pike in that (S. E.) direction. York is a mile and a half in that (S. W.) direction. Our troops are on that ridge (Twin Hills) and a squad is at the trestle over there. It is Outguard No. 2. You are in Outguard No. 1. You know where we left our platoon. It is our support. Signal Smith to come in." (Par. 126, p. 123.) I then have the squad pitch their shelter tents along the northern side of the wall where they will be hidden to view from the front by the trees along the lane and the wall. I want the men to get shelter from the rain as soon as possible. I then instruct the men of the squad, in the same manner that I did Brown; I notice the time, and detail Davis as second relief and Carter as third relief for Brown's post.

I then direct two men to take all the canteens and go over to that farm (Mills) and fill them, first questioning the people about the enemy and about the country around here. I also direct these two men to get some straw or hay for bedding in the shelter tents, and instruct them to return with as little delay as possible.

I wait until they return and order two other men to go down to the cross roads, question the people there, look the ground over and return here. I caution them not to give any information about our force or the outguard. I would see that the sentinel's position was the best available and that the men had as comfortable quarters as possible, without being unduly exposed to view and without interfering with their movements in case of attack. They would keep their rifles at their sides at all times and not remove their equipments. (Par. 124, p. 123.) After dark I put two men on post at the same time. To do this I arrange three reliefs of two men each. They are posted in pairs for two-hours at a time.

If no patrol from the support appeared within a half hour after I first took position I would send a messenger back to you to see if everything was all right and tell you what I had done.

Lieutenant: I think the two men sent to the cross roads should have been started out before sending anyone to the Mills house as this was a more important point. The Field Service Regulations state that outguards

do not patrol to the front, but what you did was entirely correct. You were securing yourself in your position and should be familiar with your immediate surroundings. You should have told the cross roads patrol to determine how much of an obstacle Sandy Creek was. I suppose you assumed the swamp was impassable.

The sentinel in this case is, I suppose, across the lane from the outguard about 10 or 15 yards in advance. After dark the double sentinel post should be posted on the pike about 30 yards in advance of the outguard.

Very frequently it would not be wise to put up your shelter tents on outguard. But here, considering the rain and the protection the trees and wall furnish, it was wise to do so.

The noncommissioned officer in charge of an outguard should be very precise in giving his orders and in making his arrangements, details, etc. The discipline must be strict; that is, the men must be kept under absolute control, so that in case of sudden attack there will be no chance of confusion and the outguard commander will have his men absolutely in hand and not permit any independent action on their part. This is often not the case, owing to the familiar relations that usually exist in our army between a corporal and the members of his squad.

We will not have time to go into the arrangements for Outguard No. 2 other than to say that the conditions there are somewhat different from those Corporal Baker has had to deal with. The outguard should be posted on the west bank of Sandy Creek and the sentinel at the southeastern end of the trestle. A skirmish trench should be dug down the western slope of the fill west of the creek, and extended across the track by throwing up a parapet about two and one-half feet high, slightly bent back towards the northeast so as to furnish cover from fire from the east bank of the creek, north of the trestle. The shelter tents could be pitched as "lean-to's" against the western slope of the fill, and hidden by bushes and branches of trees.

(Note: The details of commanding this outguard, its action in case of attack, what should be done with a passing countryman, etc., can be profitably worked out in great detail.)

Problem No. 2.

Lieutenant (to six squads): We will take the same situation as we had in Problem 1, with squad outguards as before.

Sergeant Adams, you have command of the platoon and have sent out

the two outguards. Explain your arrangements for the support. (Par. 116, p. 119.)

Sergeant Adams: I have the men fall out by squads and rest on the side of the road while I look the ground over. I then tell Sergeant Barnes, "You will have immediate charge of the guard, cooking, visiting patrols, etc., here at the support. Detail three men from Corporal Evans's squad as first, second and third relief for the sentinel over the support. Post your sentinel at the road fork and give him the necessary instructions as to the outguards, the adjacent support which is on this road (pointing west) on top of that ridge, etc. I will give you further instructions later." I then fall in the remainder of the support (one sergeant, one cook, four corporals and twenty-seven privates, three squads being intact and one man on duty as sentinel) and have shelter tents pitched under cover of the orchard and Mason house. While this is being completed I select a line for a trench, about thirty-five yards long, behind the fence on the east and west road and extending east of the Chester Pike about fifteen yards, slightly bent back towards the northeast. No trench in the road. I then say to Sergeant Foss, "Take Graves's squad and construct a shelter trench along this line (indicating), having the parapet concealed. Cut the fences so as to furnish easy access." (Par. 116, p. 119.)

I then say to Corporal Evans, "Take three men from your squad and, as a reconnoitering patrol, cross the trestle there (pointing), and follow that road (pointing to the Boling-Salem road) into Salem, reconnoitering that village. Then take up a position on that ridge (pointing to Sandy Ridge) and remain out until dusk. Send me a message from Sandy Ridge with a sketch and description of the country." (Par. 117-a, p. 120.)

I assume that Corporal Evans is familiar with the information about the enemy, the location of our outguards, etc.

Selecting five men from Corporal Geary's squad and the remaining man of Corporal Evans' squad (three having been detailed for sentinel duty, and three sent out on patrol duty with Corporal Evans), I turn them over to Sergeant Barnes, saying, "Here are six men to furnish three reliefs for a visiting patrol of two men. Have this patrol visit Outguard No. 2 and cross the trestle, going south down the east bank of the creek; thence recross the creek at the road bridge visiting Outguard No. 1; thence across to the adjacent outguard of the support on our left, which is somewhere on that ridge (pointing to the Twin Hills-Lone Hill Ridge); and thence to the starting point. Have them locate that support on their first

trip. You can reverse the route and make such minor changes from time to time as you think best. Report to me after they have completed the first round. Make arrangements for sending supper to the outguards. Take two men from Corporal Jackson's squad to carry it out. Be careful that the cook fire is not visible. I am going out to visit the Outguard No. 1 and then No. 2. You will have charge until I return." (Pars. 117-c and 118, p. 121.)

The men have stacked arms in front of the tents and have removed all equipment but their belts. (Par. 116-b, p. 119.)

I would now visit the outguards, taking a man with me, and see if they are properly located. I would instruct the outguard commanders as to what to do in case of attack, in case strangers approach, point out their line of retreat in case of necessity, etc. I would make a sketch of the position and send it, with a description of my dispositions, to the commander of the outpost.

Lieutenant: Your arrangements and dispositions appear satisfactory. You should have been more prompt in sending Corporal Evans out with his patrol. Why didn't you send a patrol towards York, or south along the Chester Pike?

Sergeant Adams: I considered that the support on my right would cover that ridge (Twin Hills-Lone Hill), and that the route I laid out for Corporal Evans would cover the Chester Pike and the country east of Sandy Creek at the same time, thus avoiding the necessity for two patrols.

Lieutenant: That seems reasonable but you should have given some specific orders about reporting on the width, depth, etc., of Sandy Creek, which might prove a very valuable or dangerous obstacle. You can readily see how quickly a command becomes broken up and depleted in strength, and how important it is to make only such detachments as are necessary. It looks as if your outguards might have been made smaller considering the size of your platoon (6 squads), but I think the squad outpost is so much better than one not composed of a complete unit, that it is correct in this case. (Par. 119, p. 122.) With Corporal Evans' patrol of three men, the visiting patrol requiring six men, the sentinel post requiring three men, Sergeant Barnes, and the two outguards, you have thirty men actually on duty or detailed for duty, out of fifty-one. Of course, the men constituting the outguards, the man detailed for the visiting patrol and support sentinel, have approximately two hours on duty and four hours off duty, so they get some rest. Furthermore, you should have a three-man patrol watching the crossroads at Salem during the

night, Corporal Evans' patrol having returned. This patrol should be relieved once during the night, at a previously stated hour, which means six more men who do not get a complete night's rest. (Par. 118, p. 121.)

Sergeant Adams: Isn't Salem rather far to the front to send a patrol at night?

Lieutenant: Yes, it is, but unless you touch the crossroads there you would have to have two patrols out, one near Maxey's farm and one on the Chester Pike. As it is you are leaving the road from York to the crossroads in front of Outguard No. 1, uncovered, but you should find that this is covered by a patrol from the adjacent support. The crossroads in front of Outguard No. 1 is the natural place for a stationary, night patrol, but it is so close to the outguard that the benefit derived from a patrol there would be too small to justify the effort.

(Note: Further details of the duties of this support can be gone into. The messages should be written, patrols carried through their tour of duty with the resulting situations to be dealt with; the sentinels tested as to their knowledge of their duties, etc. Also note carefully the manner in which the support commander uses his noncommissioned officers for carrying out his intentions, and thus avoids the most objectionable and inefficient practice of dealing directly with the privates.)

Problem No. 3 (Infantry).

(See Fort Leavenworth map in pocket at back of book.)

Situation.

A Blue force, Companies A and B, 1st Infantry, under Captain A, in hostile country, is covering the Rock Island Bridge and camped for the night, April 20-21, on the south slope of Devin ridge (*rm'*). The enemy is moving northward from Kansas City (30 miles south of Leavenworth). At 3:30 P. M. Captain A receives a message from Colonel X at Beverly (2 miles east of Rock Island Bridge (*qo'*)), stating that two or three companies of hostile infantry are reported five miles south of Leavenworth at 2:30 P. M. No enemy is west of Leavenworth. Captain A decides to place one platoon on outpost.

Required, 1. Captain A's order.

Answer. Verbally: "Two or three Red companies were 5 miles south of Leavenworth at 2:30 P. M. today. No enemy is west of Leavenworth. We will camp here. 1st Platoon, "A" company, under Sergeant A, will form the outpost, relieving the advance guard (2d platoon Co. A). The line Pope Hill (*sm'*)—Rabbit Point (*tn'*) will be held. Detached posts

will be placed on Hill 880, west of Merritt Hill (*rl'*), and on Engineer Hill (*ql'*). In case of attack the outpost line will be held.

"The baggage will be at the main camp.

"Messages will reach me on Devin Ridge (*rm'*)."

Issued verbally to officers and Sergeant A.

Required, 2. Give verbatim (word for word) the order issued by Sergeant A.

Answer. "Two companies of the enemy were 5 miles south of Leavenworth at 2:30 P. M. today. Our camp is to be here. This platoon will be the outpost on the line Rabbit Point (*im'*)—Pope Hill (*sm'*).

"The right support, 1st section, less 1 squad, under Sergeant B, will take position north of Pope Hill and cover the following front: the ravine (XIX—Merritt Hill) west of Grant avenue to the ravine about midway between Grant Avenue and Rabbit Point (*tn'*).

"The left support, 2d section less 1 squad under Sergeant H, will take position on north slope of Rabbit Point and will cover the following front: the ravine midway between Grant Avenue and Rabbit Point to Missouri River.

"Corporal D you will take the 8 men of your squad and form a detached post on Engineer Hill (*qk'*).

"Corporal E, take your squad and form a detached post on Hill 880 west of Merritt Hill (*rl'*).

"If attacked hold your front. Each support and detached post will entrench.

"Send messages to me at right support."

The outpost moves out, each support and detached post separately, without throwing out covering patrols, because the advance guard is now holding the front. There is no reserve.

Required, 3. What does Sergeant A do now?

Required, 4. What does Sergeant B do as soon as he reaches Pope Hill?

(Note: During the remainder of the afternoon one man up in a tree on Grant Avenue will be the only observing post necessary for this support. At night an outguard would be placed on Grant Avenue with continuous patrols along the front, because the open ground furnishes easy approach to the enemy. A post of 4 men might also be placed on the bridge over Corral Creek (*um'*).

Required, 5. The location of supports and the main body of detached post on Engineer Hill.

Required, 6. What patrolling would be done from the left support?

CHAPTER VI.

THE WAR GAME OR MAP MANEUVERS.

INTRODUCTION.

135. The conducting of instruction in patrolling, outposts, combat, etc., by means of map problems has been fully explained. More valuable instruction can be given by taking the student out and solving the problems with the actual ground before him, instead of a map of some locality he has never seen. This is a better mode of instruction than map problems, but, unfortunately, it takes more time. Suitable ground is not always conveniently located and weather conditions often make outdoor work impossible. During the winter, tactical walks are generally an impossibility. Furthermore, map problems cannot successfully develop the military student in forming quick decisions and issuing orders; and neither map problems nor tactical walks familiarize him with the difficulty of having his orders properly carried out, working in ignorance of the actions of subordinates at some distant point, and matching wits with a real opponent. This experience is furnished by maneuvers with real troops; but maneuvers occur at rare intervals, and even then the action is so rapid that there is too little time to ponder over mistakes and have the tactical principles involved properly explained. To meet this need, the *War Game* or *Map Maneuvers* have been developed. The designation *Map Maneuvers* is a better descriptive title and will be used hereafter.

(Note: *The method of conducting Map Maneuvers as described hereafter is most elementary, being adapted for use in instructing noncommissioned officers and privates in their duties in campaign.*)

136. **Outline of Procedure in Map Maneuvers.** A director, usually the instructor, calls a certain number of the students to the map, which is spread out on a table. He gives them, either verbally or in writing, an imaginary situation (similar to those given in the map problems in this manual), which requires a commander to accomplish some *mission*. One of the students or players is detailed to represent the commander of the imaginary patrol, platoon, etc., and the other players assigned to various subordinate positions under him.

After a careful consideration of the military problem that the situation presents to him, in connection with a study of the ground involved, as

shown on the map, the commander states to the director *his estimate of the situation*, and his *decision* as to the manner in which he will meet the situation. He then gives his first orders, either verbally or in writing, to carry out his decision. If these orders require some independent action on the part of a subordinate, the director then has the subordinate commander issue his orders or describe his movements. The students then usually retire from the table to another room or out of hearing and, with a similar map, consider what may possibly happen and how to act under such circumstances.

The director now calls a second lot of students to the map and gives them a situation, somewhat similar to the first one, but covering only what the enemy would know or would contemplate doing. The same procedure as before is followed in this case.

The director now knows the intentions of the commanders of the two opposing forces and has their preliminary orders. From the map he can determine about where and when the leading elements will first meet, etc. He calls one side back to the map and starts them on the movements required to carry out the orders that have been given, illustrating the dispositions of the troops on the map with small pieces of cardboard (cut to a certain scale representing the size and formation of the troops, and fastened down by pins having blue or red heads, according to which force they represent). He describes the weather conditions, state of the roads, appearance of the country, crops in the fields, etc., telling them what can be seen or heard from time to time. Whenever a commander or subordinate desires to make some change in his formation, send out a patrol, move in a new direction, halt, send a message, etc., he interrupts the director's description of the progress of the movement and gives his orders.

The director thus carries along one side for a time, retires them from the map, and repeats this method with the opponents. Knowing the various rates at which infantry, cavalry or artillery can walk or ride, he can determine from the scale of the map, how rapidly the movements progress, where the different forces are on the map, and what the time of day would be, etc. When a patrol would have sighted the enemy, he describes to the patrol leader what he would see, indicating the enemy's *apparent* strength, and his position, by the pins and cardboard troop signs. He pictures the situation as graphically as possible, and has the patrol leader tell what he would then do. The latter may desire to move to some other point, to send a message, or to fire in order to protect himself, etc. Knowing the enemy's intended movements at this time, the director can

usually tell the patrol leader or other commander, what next happens. If the patrol leader's dispositions or movements, and the ground as indicated by the map, lead the director to believe the enemy would see the patrol, he probably has the patrol leader retire from the map and calls in the opponents, who are supposed to be with the element that has located the patrol. They are told what they see. They then describe what they would do, and in this manner the maneuver is conducted.

When the director thinks the problem has been carried as far as practicable, he assembles all the students at the map, tells them both situations, describes the orders given, dispositions made and movements throughout the maneuver. He then discusses the tactical principles involved in the execution of the maneuvers, and points out the mistakes made, the good judgment shown, and possibly gives his views as to the best methods that might have been followed in meeting the different situations. A general discussion is then usually invited and the work considered finished for that particular meeting.

(Note: The following description of the materials necessary for map maneuvers is of importance principally to the officer who is to conduct the maneuver. Much of it is of no importance to the noncommissioned officers and privates who are to take part in the maneuvers.)

Equipment Required.

137. Maps. A good map is the most important necessity for map maneuvers. It should be on a large scale, so that small details on the ground will be plainly shown, such as fences, ditches, walls, etc. Practically all maps for this purpose are made on a scale of 12 inches = 1 mile. This means that one inch on the map represents about 150 yards on the ground.

The Elementary Map accompanying this book is also made on a scale of 12 inches to the mile, for use both as a wall map and for map maneuvers.¹ It is much better adapted for instructing noncommissioned officers than the more elaborate maps, as it has been carefully prepared with a view to being easily understood by men not well instructed in map reading.

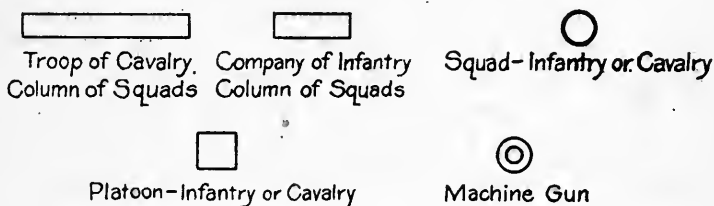
138. Table. The map should be spread out flat on a table. The top of the table should be of soft wood, if practicable, so that the pins stuck in the map will penetrate the wood easily and hold. If such a table is not available, sheets of blotting paper can be placed between the map and

⁽¹⁾ Can be obtained from the U. S. Infantry Association, Washington, D. C.; Cost, \$1.50, postpaid.

table, or three dressed, soft pine planks, a foot and a half wide and six to seven feet long, may be cleated together. This will make a very satisfactory surface for the map. It can be placed on top of a smaller table or rested on two trestle supports, two feet four inches high. If the map is fastened to this detachable top, it can also be stood up vertically, instead of being hung on the wall, and the cardboard signs can be pinned on to assist in conducting map problems and one-sided map maneuvers (explained later).

139. Troop Signs. The troops are represented by small pieces of cardboard and strings of beads on copper wire. The two forces are distinguished by the color of the heads of the pins used to fasten the cardboard pieces on the map (blue and red), or the color of the beads. The arm of the service is distinguished by the color of the cardboard, blue for infantry, red for artillery and yellow for cavalry. Troops in column, halted or marching, are indicated by the cardboard signs; troops in skirmish line, by the beads strung on copper wire, which can be bent to represent any irregular skirmish line. All these troop signs are constructed so that they accurately show on a map, at a scale of 12 inches = 1 mile, the amount of ground the number of men they are to represent, would cover in column or deployed.

The following figure shows the shape and sizes of the simpler pieces:



140. Scales. In order that the director can readily determine what distance on the map individuals or troops would cover in a certain number of minutes, he must have at hand scales of minutes of progress for dismounted troops moving in quick and double time, and for mounted troops at a walk, alternate walk and trot, trot and gallop, etc. A scale of yards is also necessary. All these scales can be conveniently arranged along the edges of a rectangular piece of cardboard, using the center space on each side of the card for printing certain data for convenient reference by the director. The two sides of such a card are shown in Figures II and III (on sheet in pocket at back of book).

141. *A set of troop signs and scales* (called a Map Maneuver Set) with cardboard pieces, beads, etc., to represent forces as large as a brigade with sanitary troops, etc., can be obtained from the Secretary of the Service Schools at Fort Leavenworth, Kansas, for about 85 cents. However, for the small map maneuvers suitable for noncommissioned officers and privates, such pieces and scales as are necessary can be readily improvised, and this course is recommended. The scales can easily be cut and marked, using the one shown in Figure 1 (on sheet in pocket at back of book) as an exact model. The pieces of cardboard to represent a squad, a platoon and a company or troop (from one to three men are usually represented by a single pin), can be cut from blue or yellow cardboard, similar to those shown in Figure I. Small blue or red beads can be strung on pieces of copper wire, and the colored headed pins bought at any dry goods store. Furthermore, the sets prepared at Fort Leavenworth represent units at war strength, while the companies, etc., we are accustomed to maneuver with are much smaller. This being the case, you can prepare your troop signs to represent the actual strength of your organization.

For example, if you have 60 men in your company, they would occupy a distance of about 25 yards, in column of squads; 25 yards on a scale of 12 inches = 1 mile, is about one-sixth of an inch. Therefore, cut your troop sign for a company of infantry in column of squads one-sixth of an inch long.

A company of 60 men deployed as skirmishers at one man per two yards would be 120 yards long; 120 yards on a scale of 12 inches = 1 mile is about .8 of an inch. Therefore, make your string of blue or red beads .8 of an inch long. For map maneuvers involving the work of patrols, advance and rear parties, outguards, etc., strings of beads are hardly necessary, as the elements concerned are too small to be represented to scale.

142. Miscellaneous. The director should provide pads of paper, pencils, etc., for writing orders and making notes. Message blanks should be available, and the Drill Regulations and Field Service Regulations at hand.

143. Rooms. The most satisfactory arrangement is for the director to have the table and map in one, well lighted room, with two adjoining rooms for the opponents or players. In the director's room there should be chairs arranged for those present who are not taking an active part in the maneuver, and each adjoining room should be supplied with comfortable chairs, writing material, etc., in order that the active participants may have a comfortable place to sit, write, smoke, etc., while discussing the movements and waiting to be called to the map.

Each set of players should be supplied with a map similar to the director's map, but on a smaller scale. The Elementary Map in back of this book is well adapted for this purpose.

It is important that Map Maneuvers should be played under as comfortable conditions as possible. Where but one large room is available the map can be placed in the center and the players assigned to opposite ends of the room. In this case it is desirable to place a screen between the players' and the director's map.

The Director.

144. Qualifications. The success of map maneuvers depends largely upon the efficiency of the director. He should have a thorough knowledge of the application of the tactical principles the maneuvers involve; he should be able to read a map at sight; he should be a man of quick decision, have an accurate memory and have the gift of rendering decisions and imparting instructions without giving offense. No matter how thorough a knowledge an officer may have of tactics, map reading and the methods of conducting a map maneuver, he will be a failure as a director unless he has a certain amount of tact and, above all, is able to *carry the maneuver along rapidly*, without slighting the important points. A tedious map maneuver does more harm than good. Where possible, company officers should direct the map maneuvers for their men.

145. Preparation of Problem. The director should prepare the problem in advance of the meeting, having in view the illustration of some tactical principle. The problem consists of two situations, one for the *Red* side and one for the *Blue*. These situations should be simple and short, free from nonessential elaborations. The commanders of opposing sides should be given their situations at least a day in advance of the meeting, except in the case of very simple maneuvers, when the situation may be stated verbally at the map.

The situations should be similar to those given in the "dialogue" map problems in this text, where, of course, but one situation (instead of two) is presented, the opposing forces being developed by the instructor.

146. Decisions. The director must constantly make decisions on a variety of subjects. He announces the state of the weather and the roads; describes the appearance of the country, and whether streams are fordable or not; determines the rates of progress; decides what can be seen; plays the part of such citizens as may be encountered; describes the effect of fire, deciding whether troops can advance, stand fast or must fall

back; announces the condition of troops as to fatigue, demoralization, etc., and thus supplies all the conditions that would be present in actual campaign. *His decisions should be short, quickly given, and absolutely final. No argument should be permitted and players should be made to understand that the maneuver is for purposes of instruction, and in actual war results are just as unexpected as the decisions of the director may seem to be.*

The decisions of the director as to the effect of fire must be based on the amount of care shown in giving the orders for firing (character, range, target, etc.), the field of fire (open or close, gentle slope or steep slope), the condition of the troops delivering the fire as to morale, exhaustion, etc., the formation of the troops fired at, the duration of the fire, etc. Detailed tables have been worked out to show the effect of fire under various conditions, but there is no place for them in an elementary exposition of map maneuvers, such as this, intended for the instruction of noncommissioned officers and enlisted men. The director should remember that there are *far less hits per shot on the battlefield than on the target range*. The players in map maneuvers invariably believe that their fire would have caused double or treble the casualties that it actually would have in campaign.

147. Calculations and Notes. The situations given the two sets of players should state some hour at which the maneuver starts. This does not mean the time of day at which the players actually meet and commence the maneuver, but the time at which the imaginary movements are supposed to begin on the ground. By means of the scale of minutes of progress at the different gaits, the director can carry the movements of the two forces along on the map at the same relative rates they would make on the ground. One detachment may be mounted and moving at a trot while another, advancing to meet the first one, may be on foot, moving at the ordinary marching rate. Naturally, the mounted detachment will cover a much greater distance in a certain number of minutes than the foot troops. The director, using the scale of distances, given in minute lengths, for cavalry at a trot and the scale for infantry at a walk, can determine about the point at which the two detachments would meet and the number of minutes they would have traveled.

For example, suppose a cavalry patrol starts from Boling for Salem at the same time (8 A. M.) that an infantry patrol starts from Salem for Boling, the first patrol alternating the walk and trot. (Elementary Map, 12 inches = 1 mile). Where would they meet and at what time? The director could estimate that the infantry patrol would cover only about two-thirds

the distance the cavalry patrol would cover—that is, somewhere near the cut where the road crosses the 42 hill between the County Road and the Gibbs house. Measuring from Boling with the scale of one minute divisions for cavalry at a walk and trot, he finds it takes the patrol 35 minutes to go from Boling to a point half way up the 42 hill. Now, measuring north from Salem with the scale of one minute intervals for infantry at its ordinary marching rate on the road, 80 yards per minute, he finds the infantry patrol would be about 375 yards north of the County Road in 35 minutes. The two patrols would thus be about 450 yards apart at the end of 35 minutes. The director could now make a close enough estimate for the purpose of any map maneuver—but to locate the exact point of meeting, scale off two more miles of advance for each patrol. This does not quite bring them to the meeting point, but shows that they will meet in less than a minute, about 515 yards north of the County Road at 8:37½ A. M. This, of course, presumes that nothing interferes with the march of either patrol.

Suppose the question had been, where will these two patrols be when they first sight each other and what time will it be? The director can at once see that, unless the cavalry patrol sends a man off the road to Bald Knob, there is no chance of their sighting each other until the minute the first cavalryman reaches the middle of the cut in the road across the 42 hill, or about 8:36 A. M., when the infantry patrol would be about 450 yards north of the County Road (36 minutes of travel from Salem). It can be seen from this example that the director must have the leader of the cavalry patrol explain his dispositions as he goes along the road from Boling. Otherwise he would not know whether or not a man was sent up on Bald Knob. It would not be correct to ask the leader of the cavalry patrol, "Are you going to send a man up on Bald Knob?" for this would suggest that action to the leader. The director must describe the road as the patrol passes along, describing things the map does not show, the progress of the patrol from point to point, etc., allowing the leader to interrupt at any moment and explain any changes he makes in his dispositions. If the director carries the patrol beyond Bald Knob and the leader or his men say nothing about it, the director gives them no idea that he considers this important, but continues along as before, keeping careful track of the arrangement of the men as they ascend Hill 42, where they will first sight the enemy, or be sighted themselves.

Suppose, for example, as the cavalry patrol passed the lane into the Gray farm the leader said to Smith, "Gallop up that lane to the farm build-

ings and across to that hill (Bald Knob), taking a look over the country. Rejoin us on this road." Now, at what time would the infantry patrol be sighted and where would it be? It is 15 minutes' walk and trot from Boling to the farm, lane, and about 5 minutes' gallop (not mounted messenger scale) up the farm lane, by the buildings, and to the top of Bald Knob—20 minutes in all from Boling. Add, say, 3 minutes for questioning people and opening gates at the Gray farm, and the flanker would reach the top of Bald Knob at 8.23 o'clock. Can he see the infantry patrol? At 8:23 this patrol would be about 50 yards south of the wooden bridge over Deep Run, and it is apparent that the woods between this bridge and the County Road would hide the patrol from flanker Smith. So he would not see them from Bald Knob unless he remained there until they passed the woods and reached the crossroads, which would be 6 minutes later. But even here the patrol would be hidden from his view by the 42 hill, which is just high enough, and squarely between Smith and the crossroads.

(Note: In making these calculations the patrols have been considered as individuals for simplicity of demonstration. The infantry patrol, for instance, would probably be stretched along the road for at least 150 yards, and the cavalry patrol for a much greater distance.)

After calculating about where and when the hostile forces will first come in contact (this means when one or both sight the enemy) the director can call the players to the map, one side at a time, and, explaining what they see along the route followed, carry the maneuver along, giving the commanders and their subordinates an opportunity to describe the arrangement of their detachments from time to time and give any orders they desire, as woods, hills, bridges, farms, etc., are passed. After he has worked each side up to within a short distance of the point of expected (by the director) contact, his knowledge of their dispositions will enable him to decide who will first see the enemy, etc.

On a scratch pad he should make such brief notations of time and place, concerning the progress of the maneuver, as may be necessary to jog his memory. Each director should keep his notes in the manner most convenient for him. There is no regulation method, but an example is given, in the map maneuver worked out in detail, further on in this text.

Instruction of Beginners.

148. Exercises in Using Troop Signs, Learning Rates of March, etc. In order that the beginner may become familiar with the troop signs,

acquire an idea of the rates of march, etc., a few exercises should be given before entering into a regular maneuver.

(a) Place two companies of Blue infantry in column of squads on the map, tail of the column at the northeastern corner of the cemetery, 800 yards northeast of York, column traveling towards the Chester Pike. Place a platoon 500 yards in advance, as advance guard, with a point of a squad 300 yards further to the front. Indicate a patrol of three men as flankers on top of the ridge in the woods by the Mills farm.

Required. Have the student pick out the proper pins and troop signs and place them on the map. Have him determine the distance in yards from the patrol to the advance guard and compare this with a similar distance he is familiar with on the ground.

(b) Place a skirmish line of Reds, about 100 yards long, along the southern edge of the orchard by the Brown house. Indicate a troop of Blue cavalry on the Chester Pike, 1,200 yards south of the orchard in column of fours, with a patrol of eight men 500 yards in advance (towards the enemy).

Required. Similar to (a). Also have the student determine whether the Reds can see any of the Blues and whether an effective fire could be delivered, etc.

(c) A company of Blue infantry marched west from Oxford at 8 o'clock—destination, Boling. At 8:30 a mounted orderly was told to gallop rapidly after the company and deliver a message. Where would he catch up with the company and at what time, assuming no halts were made?

Solution. Measure, say, forty minutes of infantry marching at 80 yards per minute. This gives the location of the infantry company at 8:40. Now, measure minutes of travel for the mounted messenger. Eight minutes puts him beyond the company, so try the position of the messenger after 7 minutes' travel (8:37) and the company after 37 minutes' travel (8:37). The messenger is still slightly beyond the infantry and it can be seen that he would catch up at about 8:36¾, at a point 775 yards west of the crossroads by the Baker house. Of course, in a map maneuver you would not figure this out to the fraction of a minute, because it would make the game too tedious, and the many possibilities for delays, etc., in actual campaign would more than equal minor errors in such calculations. But it is desirable at first to make all calculations as close as possible in order to train the eye and mind in making close estimates. Later you may estimate in many cases, not using the scale.

(d) A Red infantry patrol leaves Salem at 9 A. M., with orders to proceed along the Chester Pike to the crossroads at the Smith house and

return to Salem. It marches steadily to the crossroads, halts there for 10 minutes and then returns to Salem. At what time did the patrol reach Salem and how far had it traveled?

Solution. At 80 yards per minute it takes 42 minutes to reach the cross roads— $42 + 10 + 42 = 94$ minutes. The patrol returns to Salem at 10:34 A. M. It had traveled about $3\frac{1}{8}$ miles.

(e) The support of a Blue infantry outpost is at the stone bridge 200 yards east of the crossroads by the Smith house on the Chester Pike. A visiting patrol of three men is ordered to follow the bank of Sandy Creek to the railroad trestle, where an outguard is stationed. How long will it take the patrol to reach the outguard?

Solution. At a rate of 80 yards per minute it will take 28 minutes. As the patrol is not following a road or path, and will be delayed by trees, bushes, etc., from 3 to 10 minutes should be added to the 28, depending upon the character of the ground as stated by the director.

149. One-Sided Map Maneuver. A further method of instructing beginners in the methods followed in map maneuvers, is by means of the one-sided maneuver. The students or players are all on one side and the director, in addition to his regular duties, represents the enemy. Using the map spread out on the table or placed against the wall, and utilizing the troop signs wherever possible, the one-sided maneuver is conducted in almost exactly the same manner as the dialogue map problems given in this book.

The one-sided maneuver has the following advantages in instructing beginners:

Having only one side to consult as to orders, dispositions, etc., the director can work more rapidly, give more attention to the details of the students' movements, and carry the maneuver through more instructive situations.

Having control of the enemy's movements, the director can demonstrate the faults of any dispositions by causing the enemy to take advantage of them. He can be more certain of bringing about instructive situations than when he has no control over the orders and dispositions of both sides. There is no certainty as to what course the regular two-sided map maneuver will take, as the two leaders are free to give such orders as they think best.

In a one-sided maneuver the players remain constantly at the map, and thus receive more instruction.

It should not be considered from the foregoing that the one-sided ma-

neuver is better for purposes of instruction than the regular map maneuver. It is better for beginners, but interest cannot be maintained indefinitely, principally because the players feel that the director can take too many liberties with the enemy's movements. Furthermore, the student feels that there is no contest of wits between himself and the enemy, as the director, playing the enemy's part, also has full knowledge of the plans and movements of the other side.

150. Situations for One-Sided Map Maneuvers. The situations given in the various dialogue map maneuvers furnish excellent examples of situations for these map maneuvers. They should be short and simple, dealing with patrols and forces not larger than a platoon. The director should plan each situation with a view to illustrating certain tactical principles, and the leading of the patrols or squads under certain circumstances.

Examples: (a) A Blue company from the north camps at Boling at 2 P. M. Sergeant Davis is given the following orders: "Red scouts have been seen in the valley of Sandy Creek. The company (or troop) will remain here for the night. Take three men and patrol south along Sandy Creek for two miles and see if any large detachments of the enemy are in this vicinity."

The director could have in view the following points for Sergeant Davis and his patrol: The proper inspection and formation of the patrol; the route to be followed; the information given the outpost of the company; the reconnoitering of Boling woods; the reconnoitering of the Baker farm and questioning of its occupants; the action of Sergeant Davis when a mounted Red scout or patrol is sighted (no word should be sent back as the company commander already knows Red scouts are in the vicinity); Sergeant Davis' action when he has gotten about two miles out and it appears that by going a half mile further he may secure important information (he should go on); the route taken in returning (different from the outward route); the sending of a properly written message; Sergeant Davis' idea of the country as shown by the map; his report on returning, etc.

(b) A Blue battalion of infantry on the Valley Pike at the crossroads by the Baker house, is hurrying south to seize York. The Reds are reported to be moving from the east towards York. Company A, Blue Battalion, forms the advance guard, with Sergeant Davis 400 yards in advance commanding the point of one squad.

The director could have in view the following points for Sergeant Davis and his point: The formation of the point; the non-use of flankers in

open country where it can be observed from the road; the use of flankers in crossing the hills on the Valley Pike; the action of Sergeant Davis when the point is fired on from the cut in the road one mile and a third north of York (he should act quickly to prevent the march of the column from being delayed in case the Reds were only a delaying patrol), etc.

(c) A Red infantry platoon is stationed at the Brown farm, on the Chester Pike, as support of an outpost. Corporal Barnes is given the following orders: "Take your squad and move north on this road to the first road forks (by the Morey house), and establish yourself there as Outguard No. 2 of this support. Outguard No. 1 is about one-half mile out this lane (pointing along the lane along the southern edge of Boling Woods). The enemy is reported to be camped five miles north of here. Move out at once."

The director could have in view the following points for Corporal Barnes and his squad: The formation of the squad as it marches out to its position; the necessity of sending flankers through the western edge of Boling Woods, despite the heavy underbrush; the sending of a temporary scout to look over the country from Long Ridge; the arrangements made at the road forks; the position of the sentinel, his instructions, and the position of the remainder of the squad; Corporal Barnes' action in case a Blue patrol is sighted (should immediately send back a message, as no Blues were thought to be that close); Corporal Barnes' action in case his outguard is attacked from the cut on hill 38, etc.

Conduct of a Two-Sided Map Maneuver.

151. After the students have become familiar with the map, scales, troop signs and one-sided maneuvers, the director can take up the regulation map maneuver; with two opposing sides. There should not be more players on a side than the director can bring into active participation in the game, usually not more than four or five and preferably but two or three. The students who are not assigned as players in a maneuver can secure most valuable instruction by sitting around the director's map table and following the play of both sides. Frequently more will be learned in this manner than when actually participating in the maneuver. Observers should be permitted to smoke, should be shown both situations, and, when no players are present, they should be allowed to discuss the progress of the maneuver with each other. The director (who is really the instructor in map maneuvers for noncommissioned officers and privates) should make every effort to make the surroundings of a map maneuver as pleasant as possible.

152. The following is an example of the method usually followed in conducting a map maneuver, worked out in detail. The students should follow out this maneuver on the map, the director reading the text aloud, placing the pins, etc.

Director: Captain A.

Blue players: Sergeant Adams, Corporals Baker, Carter and Davis.

Red players: Sergeant Ely, Corporals Fry, Gray and Hay.

The following situation, in writing, is given to Sergeant Adams fifteen minutes before the maneuver is to commence:

Blue Situation: A Blue reconnoitering platoon from Chester, halts at 10 A. M., August 2d, in the clump of woods 300 yards north of Baker's pond, to rest and eat lunch during the heat of the day. The inhabitants are friendly to the Blues, and the platoon commander is lead to believe that there is a large hostile camp 8 miles to the south. At 10:05 A. M., Sergeant Adams receives the following orders: "The platoon will remain here until 2 P. M., when it returns to Chester. Take three men from the first squad and reconnoiter south through the valley that the railroad follows. It is very important that the enemy does not learn of the presence of the platoon in this neighborhood. I am sending Sergeant Mills with a patrol down that road (pointing to the Valley Pike). Return by 2 P. M." The day is clear and warm.

Required:

1. Sergeant Adams' estimate of the situation.
2. His orders.

The following situation, in writing, is given Sergeant Ely fifteen minutes before the maneuver is to commence:

Red Situation: A Red battalion of infantry is encamped on August 2d, one mile south of Salem, in hostile country. Sergeant Ely is given the following orders: "A spy reports that Blue troops moved south from Chester early this morning. Select four men from Corporal Smith's squad and reconnoiter towards Chester and determine whether or not this information is correct. The battalion will remain here today unless the Blues appear south of Boling, in which case we will probably advance to drive the enemy back. Return by 3 P. M." At 10 A. M. Sergeant Ely's patrol reaches Salem. The weather is clear and warm.

Required:

1. Sergeant Ely's estimate of the situation.
2. His orders at Salem.

Sergeants Adams and Ely have received their situations and retired to

their respective rooms with their assistants to study the situation on the small scale map. The director has the large map spread out on his table; he has his troop signs and scales on one corner of the table; and explains both situations to the students who are not active participants, but are merely observers. At the end of fifteen minutes the director tells one of the observers, who has been detailed to act as messenger, to call the Blue side to the map.

Director: Are you ready, Sergeant Adams?

Sgt. Adams: Has the platoon any outposts?

Director: Two men on Hill 83, two on Lone Hill and one where the platoon is resting.

Sgt. Adams: I have four hours in which to patrol, but as my men have already marched about eight miles from Chester and are to return there tonight, I must be careful not to overtax them. Assuming that nothing occurs, I will work south until about 12:15 P. M. and then turn back. My mission is a double one. I am to scout the valley for information about the enemy, and I am also to prevent the enemy from learning of the presence of the platoon. As I could not see into the valley from my present position, I will move to Hill 62, from where I can overlook the valley and learn what the outposts there have seen. I will then determine on my route. In moving to Hill 62 I will send Baker 100 yards in advance and follow with the other two men.

Director: (Makes note of time of starting 10:10). You should have given your orders to your patrol, explaining your mission, but to save time we will omit that. When you arrive on Hill 62 (places blue pin with small blue circle on Hill 62) the men there tell you they have seen no one in the valley. You see the Chester Pike, which appears to be a good road bordered on either side by wire fences and a thick growth of weeds. You can follow the course of the railroad to the fill just beyond Sandy Creek, and the course of the latter can be traced by the trees and bushes along its banks. The fields between the creek and the Chester Pike are in uncut hay; those east of the Creek seem to be mostly meadow land. To the south you can see a range of hills across the valley (Sandy Ridge and Hill 42 would so appear at this distance). You cannot see the Mason house or country beyond, as the spur in your immediate front hides this section from your view.

Sgt. Adams: I intend to move along this ridge, keeping along the western edge of the woods, to the spur 600 yards south of me, and then head for the Chester Pike at the Mason farm, and work across to gain the top of Sandy Ridge. I give the following orders: "We will move south to

that hill (Sandy Ridge), keeping to the west of these woods. In case we become separated make for the railroad and, if there appears to be no chance of our reassembling, follow it back to the platoon. Baker will go about 150 yards in advance; Davis will follow me at 100 yards; and Carter will scout through the woods, all keeping in sight of me and watching for signals." When I reach the ridge 600 yards south of Hill 62, what do I see?

Director: (Moves pin to new position.) You get a better view of Sandy Ridge and can see the orchard and tops of buildings at the Mason farm. You can see the stone wall and line of trees running west from the Pike to the Mills farm, and the buildings there. Immediately below you is the crossroad running west from Mason's. The field between it and the Mills farm lane is dotted with stacks of cut corn stalks.

Sgt. Adams: We will descend from the ridge and move across the fields towards the Mason orchard.

Director: The Blues may retire.

(The director now measures with the one minute of march scale for 80 yards per minute, from the platoon to Hill 62 (10 mins.), adds 5 minutes for the delay there, and measures to the ridge where he discontinued with the Blues (9 mins.). He then jots these down in his notes and removes the troop signs and says, "Call the Reds to the map.").

Director: Sergeant Ely, give your estimate of the situation.

Sgt. Ely: My mission requires me to reconnoiter north towards Chester for signs of the enemy, and to send back any information of hostile detachments in this vicinity as quickly as possible in order that the battalion commander can arrange to drive them back. I am left free to determine my own route towards Chester, and on learning how the roads run from Salem, due north through Boling and one around Sandy Ridge and then north about $\frac{3}{4}$ of a mile west of the first road, I consider that I should move so that I can watch both of these roads. I can best do this by moving to the top of Sandy Ridge, from where I can secure a good view of the country; and from there follow the railroad and Sandy Creek. As I am in hostile country, I must be careful to keep my men together and, in general, to avoid being seen by the inhabitants. Of course, I have already been seen in Salem. I assume that we have not done any marching this morning, and as I have five hours in which to work, I may be able to go 6 miles north of our camp and get back by 3 P. M. I have allowed for a number of halts and for cross country walking. I have ex-

plained my mission to the patrol and told them we would first head for Sandy Ridge, where we would assemble in case we became separated. When we turn northwest onto the Chester Pike in Salem, I am 75 yards in advance of Fry and Gray, Hay is 50 yards to the right of the Pike and the fourth man follows Fry and Gray at 25 yards.

Director: Have Gray act as rear guard and the fourth (imaginary) man go with Fry.

Sgt. Ely: Very well, sir. What does Sandy Ridge look like?

Director: It is covered with short grass and frequent outcroppings of rock.

Sgt. Ely: In order to mislead the people in Salem, I will continue along the Pike to just beyond where it crosses the southern nose of Sandy Ridge. I will then turn off the road and ascend the west slope of Sandy Ridge until I gain the crest, signaling to the other men to keep below the crest. What do I see?

Director: (Placing a red pin near crest of Hill 68.) You can see the Barton farm and orchard, the Mills farm and lane, and the high ridge running north from Barton's. You can follow the Chester Pike as far as the Mills farm, and Sandy Creek as far as the swamp. Hay has been cut from the field north of Barton's and south of the County Road. You can see the latter road from the steel bridge to the crest of the ridge to the west; north of the County Road the fields are dotted with stacks of corn stalks. East of Sandy Ridge you can follow the road to Boling as far as Bald Knob. The Maxey house is plainly visible and the railroad can be traced as far as the Quarry switch. The fields on this side are mostly in grass. There is no sign of the enemy in any direction. What do you do?

Sgt. Ely: I will follow along the west slope of the ridge, just below the crest, to its northern face, and look over the country from there.

Director: The Reds may retire.

(The director must now pause a few moments to determine if either patrol sights the other. He calculates that Sergeant Ely reaches the crest of Hill 68 on Sandy Ridge in 30 minutes from Salem, or at 10:30, and remains there five minutes, resting after the march and climb and studying the country. At 10:25 the Blue patrol started down from the ridge for the Mason's orchard. It would, therefore, be off the ridge and in the low land by 10:30 and, therefore, invisible to the Reds. The northern part of Sandy Ridge would cut off Sergeant Ely's view from Hill 68, and

the distance is also too great without the use of field glasses. The Blues would reach the cover of the orchard at 10:35 or 2 minutes after the Red patrol starts along Sandy Ridge from Hill 68. It is about 8 minutes from Hill 68 to Hill 66, from where the Reds can have a full view of the valley to the north, and might also be seen from the Mason house, which is less than a mile away. Sergeant Ely will reach Hill 66 at 10:41, 6 minutes after the Blue patrol enters the orchard. The director notes down the time the Blues enter the orchard and the Reds reach Hill 66. He must now learn what Sergeant Adams does after reaching the orchard, and Sergeant Ely's formation, etc., on arriving at Hill 66, before he can decide what may happen. All these calculations should require but two or three minutes, and as the director becomes more expert he can in many cases omit calculations and make a rapid estimate. The Red pin is removed and a Blue pin placed at point where Blues were left.)

Director: Call the Blues to the map. (Blues enter.) Sergeant Adams, describe your formation and movements in going from here to the orchard.

Sgt. Adams: The patrol retains practically its original formation, slightly increasing the distances, except Carter, who closes to within 25 yards of me. We move straight across to the orchard and I halt the patrol under its cover and go forward by myself to see if anyone is about the place. If there is any one I will question them.

Director: (Moves Blue pin to Mason house.) Mason and his wife are at the house.

Sgt. Adams: I ask them if they have seen or heard anything of the enemy.

Director: They say that they have heard nothing except that Reds were reported two days ago to be marching north from a city 20 miles south of here. They appear honest.

Sgt. Adams: How did they hear this?

Director: From a man who came up from Salem on business.

Sgt. Adams: What time is it now?

Director: It is 10:40.

Sgt. Adams: Do I see anything suspicious to the south?

Director: No.

Sgt. Adams: I wave to my patrol to advance and walk out into the Chester Pike. I intend to follow the Pike to the crossroads and there cross the Creek on the County Road and gain the top of Sandy Ridge.

Barker is 100 yards in front, Carter near me and Davis 75 yards in rear. When I——

Director (Interrupting): That will do for the present. The Blues may retire. (Removes the Blue pin and places a Red one on Hill 68.) Call the Reds to the map. (The Reds enter.) Sergeant Ely, you may continue to describe your movements from here.

Sgt. Ely: I advance just below the crest of the ridge with two men about 50 yards behind me, Gray about 50 yards behind them, and further down the hill, and Hay about 100 yards down the hill to my left. When I reach Hill 66 I signal to the men to lie down, and I lie down behind the crest and look over the country.

Director: You see two or three dismounted men moving south along the Chester Pike from the road junction at the Mason house. They are scattered along the road for what appears to be 100 yards. (Places three blue-headed pins in road to represent this.)

Sgt. Ely: Have they seen me?

Director: You do not know.

Sgt. Ely: I will watch them for a few minutes.

Director: They continue along the road.

Sgt. Ely: I crawl quickly back to Fry and call to the other men to move up the hill, keeping low, and cross over in rear of Hill 66 to the east slope of the Ridge. We all move over and go down the side of the hill about 100 yards. "Fry, hurry back to the battalion and tell Major X that a Blue infantry patrol is moving south down the Chester Pike." Captain, how far is the Blue patrol from our battalion and what time is it?

Director: It is 10:45, but you will have to estimate the distance.

Sgt. Ely: Fry, hurry back to the battalion and tell Major X that a Blue patrol of three men was moving south on the Chester Pike, 3 miles from his camp at 10:45. Do you understand?

Corporal Fry: Yes, sir.

Director: What do you do now, Sergeant? Corporal Fry, step away from the map a moment. (Places a Red pin to mark Ely's next position.)

Sgt. Ely: I lead my patrol down the hill to where the County Road crosses the railroad. From there I intend to move north along the railroad.

Director: All the Reds, except Corporal Fry, may retire. Corporal, step to the map and tell me what you do.

Corp. Fry: I would run south down the slope of the Ridge to the railroad and follow it back to the battalion, avoiding the town of Salem.

Director: Well, what do you do then? *Do not look at the map.*

Corp. Fry: I tell the Major, "Sergeant Ely sent me back to tell you that a Blue patrol of three men was moving south on the Chester Pike at 10:45."

Director: The Major asks you what Sergeant Davis is doing now.

Corp. Fry: I do not know. I left him at Sandy Ridge.

Director: You would probably have looked back and have seen him descending from the ridge. How long do you think it would have taken you to get back?

Corp. Fry: About 20 minutes.

Director: It is about $1\frac{3}{4}$ miles, which would probably take you about 25 minutes. You may now remain at the map as a spectator.

(The director now removes the Red troop signs, places a Blue pin to represent the position of the Blue patrol 300 yards south of the Mason house, and calculates that the Red patrol would reach the railroad crossing at 10:55, and that for the Blue patrol it is now 10:45.)

Director: Call the Blues to the map. (The Blues enter.) Corporal Baker, as you reach this point you see two dismounted men, Reds you think, disappear over the hill here (places a Red pin at the southern end of Hill 66).

Corp. Baker: I halt and hold my rifle horizontally above my head. If Sergeant Adams is not looking, I call to him, and when he looks I point in the direction of Hill 66, and then lie down at the side of the road.

Sgt. Adams: Do I see them?

Director: No.

Sgt. Adams: I would have all the men take cover and would run forward, stooping, to Baker and find out what he had seen, and then watch the hill for a few moments.

Director: You see nothing.

Sgt. Adams: Is the hay in the fields east of the Pike high enough to furnish cover?

Director: It is about 3 feet high.

Sgt. Adams: I suppose my patrol has been seen, for we are out in an open valley; there is not much hope of moving without being seen, therefore, I continue rapidly down the Pike and turning east, cross the creek on the steel bridge. I order Baker to keep about 200 yards in advance, send Carter about 100 yards north of the County Road and have Davis

follow me at 100 yards. I have cautioned all to keep a sharp lookout and be prepared to jump for cover. I signal Baker to turn out of the road and make for Hill 66.

Director: What are your intentions?

Sgt. Adams: I want to see beyond Sandy Ridge. If I merely stayed in the valley, prepared to keep the Red patrol, if it was a patrol, from going in the direction of the platoon, I might do that, but I would accomplish nothing in regard to finding out about a larger force in this vicinity. By going directly to the hill, I may get to see beyond it and learn that much more; and if the Red patrol has tried to go north, avoiding me, I should be able to see them, I think, and go straight for them, cutting them off, capturing them or forcing them to turn east. I may be shot up myself in going up this hill, but I consider I must take the chance. I am in a bad position and have not much choice, if I intend to learn anything in the short time I am to stay out. What time is it, Captain?

Director (Measuring from point 300 yards south of Mason's): It is now 11:10. The Blues may retire. Call the Reds to the map. (He moves the Blue pins and places a Red pin at the railroad crossing on the County Road.) Sergeant Ely, describe your dispositions and movements from this point.

Sgt. Ely: We start down the railroad, Gray 75 yards in front, Hay the same distance to the west of the track, and the third man following me at 50 yards. I order Hay to keep a careful watch to the west for the other patrol. Can he see them?

Director: No; the Ridge cuts off his view now.

Sgt. Ely: When we get beyond the northern end of the Ridge can he see them?

Director: No; it is almost 1,000 yards to the Pike and the trees along the creek, rolls of the ground, etc., hide your view of the Pike.

Sgt. Ely: Then I do not suppose they can see me?

Director: You do not know. Go ahead with your movements. I will tell you when you can see anything.

Sgt. Ely: I continue on the railroad trestle over the creek.

Director: What are your intentions? You see the creek is swift, 5 feet deep and 60 feet wide.

Sgt. Ely: I intend to follow up the west bank of the creek for the present.

Director: The Reds may retire.

(The director must now determine just where the Red patrol will be when the Blues reach the top of Sandy Ridge. Taking into consideration the character of ground over which the patrols have moved, their surroundings, etc., the director decides that the leading Blue reaches the crest of Hill 66 at 11:18, and that the Reds reach the trestle at 11:16. Sergeant Adams will reach the top of the hill about 11:20, when the Reds will have crossed the trestle. Removing the Red pin and placing a Blue pin on the northern crest of Hill 66, he has the Blues called to the map.)

Director: Corporal Baker, remain at the map; Sergeant Adams, step back out of hearing with your other assistants. Corporal Baker, you reach the top of the Ridge here without any resistance. What do you do?

Corporal Baker: I lie down.

Director: Where do you look?

Corporal Baker: I look along the hill down in the valley toward the Maxey house, toward Hill 42, and towards Salem.

Director: All the Blues, please step to the map. Sergeant Adams, Baker reaches the top of the hill and pauses to look over the country, lying down.

Sgt. Adams: I signal "Halt" to the other men and wait for his signal.

Director: He makes no signal.

Sgt. Adams: I continue up the hill, halt the other men in rear of the crest and lie down beside Baker, examining the country.

Director: You see nothing suspicious.

Sgt. Adams: What time is it?

Director: It is 11:22.

Sgt. Adams: There is no sign of any large detachment of Reds as far south as Salem and I do not know where the hostile patrol has gone. They may be hiding in the woods at the northern end of this Ridge or near the Maxey house, or they may have fallen back behind the south end of this hill or Hill 42. I would gain nothing by an encounter with them now, and would risk being surprised, as they are probably watching our movements now. It would be dangerous to venture into the valley east of Sandy Ridge and I have already seen that no large force of Reds is nearby. I cannot risk remaining here, therefore, I decide to retire to the steel bridge and work north under cover of the timber along the west bank of Sandy Creek. I will order Baker to remain on this hill until we reach the bridge when he will run down the hill and follow as rear guard, at 75 yards.

Director: That will do for the Blues. You may retire. Call the Reds to the map. (He removes the Blue pin and places a Red at the northern end of the railroad trestle.) Sergeant Ely, you reach this point and have seen nothing of the enemy.

Sgt. Ely: I will follow the creek north until we are opposite the southern end of the orchard at the Brown house, and if I have seen nothing I will return to this trestle, cross the creek and go to Bald Knob and return to the battalion.

Director: The Reds may retire.

(Seeing that there can be no contact between the patrols for some time, the director now calculates when the Blues will reach the trestle. (Left Hill 66 at $11:25 + 42 = 12:07$) and when the Reds will return to the same point (left trestle $11:18 + 50 = 12:08$). In making these calculations the character of the ground covered, probable delays, etc., are considered. The director now sees that the Blues will arrive first, but if the Reds have a flanker on the railroad fill, he will see the Blues before they reach the trestle and, having the advantage of the railroad embankment, the Reds should be able to drive the Blues back, at least temporarily. He places a Red pin on the Creek bank, opposite the orchard.)

Director: Call the Reds to the map. (The Reds enter.) Sergeant Ely, you go down the creek to this point and see nothing of the enemy.

Sgt. Ely: I would then return to the trestle at once and go to Bald Knob to get a view of the country towards Boling.

Director: Explain the arrangement of your men as you go.

Sgt. Ely: I would be about 50 yards in advance of Hay; Gray would be 75 yards on Hay's right flank and the third man would follow at 50 yards. When we reached the northern end of the railroad fill I would tell Gray to walk along it. On crossing the—

Director (Interrupting): All step back from the map except Corporal Gray. Corporal, when you are walking along the fill about 300 yards from the trestle you suddenly see a Blue dismounted man walking towards you from the south here. (Places a Blue pin on the map about 75 yards south of the trestle and a Red pin to mark Gray's position.) What do you do?

Corporal Gray: I lie down and open fire on him

Director: Sgt. Ely and Corporal Hay may return to the map. Sergeant, when you are walking along about 250 yards from the trestle, be-

tween the creek and the fill, Gray suddenly lies down here and opens fire in this direction (indicating).

Sgt. Ely: I wave to the other two men to follow me and run forward and up on the fill. What do I see?

Director: You see one Blue man running back here. (Places a Blue pin about 150 yards south of the point the trestle crosses the creek.) You also see two other men running towards him.

Sgt. Ely: I open fire rapidly and as soon as the other two men reach me I order them to rush across the creek on the trestle and open fire from that side. Under cover of their fire I hope to get Gray and myself across.

Director: The Reds may retire. Call the Blues to the map. (He removes the pins and the Blues enter.) Sergeant Adams, how are your men arranged in moving up the creek?

Sgt. Adams: Baker is 150 yards in advance, I follow with Carter, and Davis is 75 yards in rear.

Director: When Corporal Baker reaches this point (places Blue pin about 75 yards south of the trestle and a Red pin at the point where Gray fired from), he is suddenly fired on by one man from this point on the fill. There being no cover nearby he runs back toward you and a second man opens fire from the fill at this point. (Places Red pin on the fill about 150 yards south of Gray's position.) What do you do?

(Sergeant Adams takes some time to decide.)

Director: While you are deciding two men rush across the trestle and open fire from the fill on east side of the creek here (places Red pin). One of your men is wounded in the arm and your position is so exposed that your men run back in the hayfield and take cover.

Sgt. Adams: I would join them and order them to crawl towards the Chester Pike. I see no advantage to be gained by fighting here, and we can see almost as well from a safer point nearer the road.

Director: Call the Reds to the map. The Blues may remain here as we will now play the game open. (The Reds enter.) Sgt. Ely, the two men are safely across the trestle and open fire from the fill. The Blues seem to be withdrawing under cover of the short hay, towards the Chester Pike. You have counted four men. Tell me what you now do, without giving the other side any information as to how many men you have.

Sgt. Ely: I would complete my movement to the east bank of the creek and for the present remain watching the Blues' movement.

Director: Sergeant Adams, what are your intentions?

Sgt. Adams: What time is it?

Director: 12:15.

Sgt. Adams: I will send the wounded man back in care of another man, with a message, and remain near the Mason farm until 1:15 P. M., and then return.

Director: The maneuver has been sufficiently developed, so we will terminate it here. I will now read the Red and Blue situations.

The director reads aloud both situations, briefly gives each commander's estimate of the situation and their orders. He then rapidly describes the movements of the two patrols, explaining their relative positions and intentions at the several critical points in the maneuver, up to the time the maneuver was terminated. He then makes the following observations on the movements:

Both commanders had a correct conception of their missions. The Blues were both to seek information and prevent the enemy from obtaining any. The Reds were after information alone, and only fought to prevent themselves from being cut off. In going from Hill 62 to the Mason house, I think the Blues could have taken a better route, not going out into the open on the ridge south of Hill 62, but by keeping within the edge of the woods, observing the valley from there and utilizing the woods to cover their descent into the valley. Sandy Ridge was their proper objective as it commands a comprehensive view of the valley in every direction. The same applies to the Red patrol. If they had followed the road to Boling they could not have observed the Chester Pike, and from the Chester Pike the Boling road would have been unobserved.

The disposition of the members of the Blue patrol appeared proper; but I think all distances were too short in the case of the Reds and they might have resulted in disaster.

Sergeant Adams was confronted by a trying situation when he was sighted by the Red patrol. His quickly reached decision to go ahead and ascend Sandy Ridge was exceedingly risky, but was far better than a more hesitating procedure resulting in a long wait near Mason's and nothing definite accomplished. Possibly it involved too great a risk to be justified, but it is better to err on the side of too great a determination to go ahead and carry out your plan, than to halt, wait and accomplish nothing. He should have sent a message telling of the presence of the Reds in that section.

The decision of Sergeant Ely to continue north after sighting the Blues was excellent, but he should have given some specific orders to watch the

Blues after he had crossed over the Ridge and to notice whether they observed his patrol. A flanker could have followed just in rear of the crest of the northern nose of the Ridge to the woods at its foot, and would have seen the Blues halt and then resume their march south. Knowing this, the Red patrol should not have risked following the railroad across the open fields and crossed to the western bank of Sandy Creek. Furthermore, the Red patrol could not hope to see much by following the creek bank and only going as far as the Brown's orchard. Unless the intention had been to go to Hill 62, Long Ridge, or around the farm lane to the bridge over Sandy Creek south of Boling, it does not seem that the move from the railroad trestle to the orchard was the best move under the circumstances. Corporal Fry's delivery of his message showed that he should have been ordered to repeat it before leaving. The message was incomplete in that it did not tell what Sergeant Ely next intended to do.

Sergeant Adams' move in returning from Sandy Ridge appears proper, but he was not quick enough in realizing his situation at the trestle when fired upon. Decisions at such a moment must be made instantly, whether right or wrong. The formation of his patrol was good; the distances being sufficiently great, which saved him from a heavy loss. Sergeant Ely showed good judgment in his rapid action to get his patrol across the creek. While he might readily have guessed that this was the same Blue patrol of three or four men he had already seen, yet he had no particular reason for inviting a fight, and he was in a dangerous position while west of Sandy Creek.

Are there any remarks on the maneuver?

(A general discussion is thus invited and the session completed.)

Notes.

	Blue.		Red.
Start.	10-10 A. M.	Salem.	10-00 A. M.
Hill 62—	-20	Hill 68—	-30
Leave Hill 62	-25	Hill 66—	-45
Orchard—	-35	Message	-45
See Reds	-44	r. r. x—	-55
Hill 66	11-18	Trestle	11-16
Leave Hill 66	-25	Return trestle	12-08
Trestle	12-07		

153. Remarks. In maneuvers where only individuals or groups of two or three men are together, the pins are usually used without any

cardboard troop signs, though the circular disk may be put on the pin. This would have to be done to indicate cavalry or infantry.

Should a player wish to write a message, the director allows him to write it when he has retired from the map, but he cautions him not to show it to the party it is intended for, and to bring it in when he returns to the map. The director gives it to the party it is addressed to when that person reaches the point in the maneuver the director considers he would actually have reached before he could have received the message.

Whenever players are supposed to be separated from each other, on the map, so that they could not communicate verbally, the director should have them at the map separately to make their decisions, and should caution them not to tell each other what is occurring in their vicinity.

The difficulty of directing increases rapidly with each additional player and it is also frequently difficult to give interesting work to every player. For this reason, care should be taken to avoid assigning a large number of players to a side. In the foregoing example of a map maneuver worked out in detail, two players on a side would have been the best arrangement for the average director and for the instruction of the players.

Situations for Map Maneuvers.

(a) Cavalry.

Blue Situation: On July 1st a Blue contact troop of cavalry from the west, halts in Oxford at 10 A. M., and Sergeant A receives the following orders from his Captain: "We have no information of the enemy's presence in this vicinity. The troop will remain here for the night. Take the first six men from the First Platoon and reconnoiter as far south as Salem, returning before dusk. I am sending a small patrol to York." The day is cool, the roads hard macadam, and the country friendly.

Required: Sergeant A's estimate of the situation and his orders for the start.

Red Situation: On July 1st a Red contact troop of cavalry halts in York at 10 A. M., and Sergeant B receives the following orders from his Captain:

"Small Red cavalry detachments are reported to have been operating along the railroad as far south as Salem. The troop will camp here for tonight. Take this first platoon (15 men), move out the County Road, and examine the railroad line between Salem and Oxford, to determine if the track or bridges have been injured. The inhabitants in this section

are very hostile and not to be trusted." The day is cool, and the roads are hard macadam.

Required: Sergeant B's estimate of the situation and his orders for the start.

One or two players can be used on the Blue side and from two to four on the Red side. The roads are assumed to be hard macadam, which should be used to teach the men something about the care of their mounts. The Blues' mission requires reconnaissance only. The size of the Red patrol should cause the Blue leader considerable trouble in deciding whether or not it is part of a larger advancing force, and he should also have considerable difficulty in determining what the Red patrol is trying to do. The Red leader will be constantly confronted with a desire to separate his command to a dangerous degree.

(b) Infantry.

Blue Situation: One squad of Co. A, 1st Blue Infantry at Oxford is ordered, at 7 A. M., to take two escort wagons, proceed to Nixon's store, and seize a large amount of oats reported to be stored there, and carry it back to Oxford. The country is hostile and the nearest Reds are thought to be 10 miles south of York.

Required: Corporal A's estimate of the situation and his orders.

Red Situation: Co. A, 1st Red Infantry, from the south, halts at the Maxey farm at 7 A. M., and Corporal A receives the following orders: "Blue troops are reported to have occupied Oxford. Take your squad and reconnoiter the valley of Sandy Creek and the country to the west of that range of hills (points towards Lone Hill). Reassure the farmers, telling them they will be given protection against the enemy's depredations. The company will remain here today. Return by dusk." The country is friendly.

Required: Corporal A's estimate of the situation and his orders.

There should be about three players on a side in this maneuver. The director should require some time for the loading of the wagons at Nixon's store. The Blue leader should make careful provisions for the safety of his squad while loading, by scouts on the high ground to the south and east.

(c) Infantry-Cavalry.

Blue Situation: The 1st Bn. 1st Blue Infantry camps on the bank of the stream just west of Boling at noon and Sergeant A receives the following orders from his captain: "Nothing has been heard of any Red troops in this neighborhood. The battalion will camp here for the night. Our

company will form the outpost and you will take the 1st platoon (4 squads) and take position as Support No. 1, at the road forks by the Morey farm. The 2d platoon as Support No. 2 will be at the bridge over Sandy Creek, on the road due south from Boling. You will have charge of the section from the eastern edge of the Boling Woods to Long Ridge, and will hold your position in case of attack. There will be no reserve. Messages should be sent to Battalion Headquarters. I will visit Support No. 2 first."

Required: Sergeant A's estimate of the situation, his orders and a sketch of his dispositions.

Red Situation: Troop A, 1st Red Cavalry, halts in Oxford at noon and Sergeant A receives the following orders: "The Blues are reported to be moving south from Chester. The troop will camp here for the night. Take six men and reconnoiter towards Chester by the Chester Pike and find out whether any large detachments of the enemy have moved south. Return by dusk."

The country is hostile.

Required: Sergeant A's estimate of the situation and his orders.

The director should arrange to have the Blue company commander absent at Support No. 2 or at Battalion Headquarters when the Red cavalry is sighted. The Red situation can be used for an infantry patrol by having a Red company halt at Nixon's store or at the County Road-Chester Pike crossroads.

Note: To those who wish to go more extensively into the subject of map maneuvers, the author would recommend, "Map Maneuvers," by Capt. Sayre. The book can be obtained from the Secretary, Army Service Schools, Fort Leavenworth, Kans. (Book, 45 cts.; one war game set, 50 cts.; one 12-inch map, \$1.25.)

CHAPTER VII.

MILITARY SKETCHING.

(While this chapter presents the principal features of military sketching in a simple, clear manner, attention is invited to the fact that the only way that any one who has never done any sketching can follow properly the statements made, is to do so with the instruments and the sketching material mentioned at hand. In fact, the only way to learn how to sketch is *to sketch*.)

A Military Sketch is a rough map showing the features of the ground that are of military value.

Military Sketching is the art of making such a military sketch.

Military Sketches are of three kinds:

Position Sketches, Fig. 1;

Outpost Sketches;

Road Sketches.

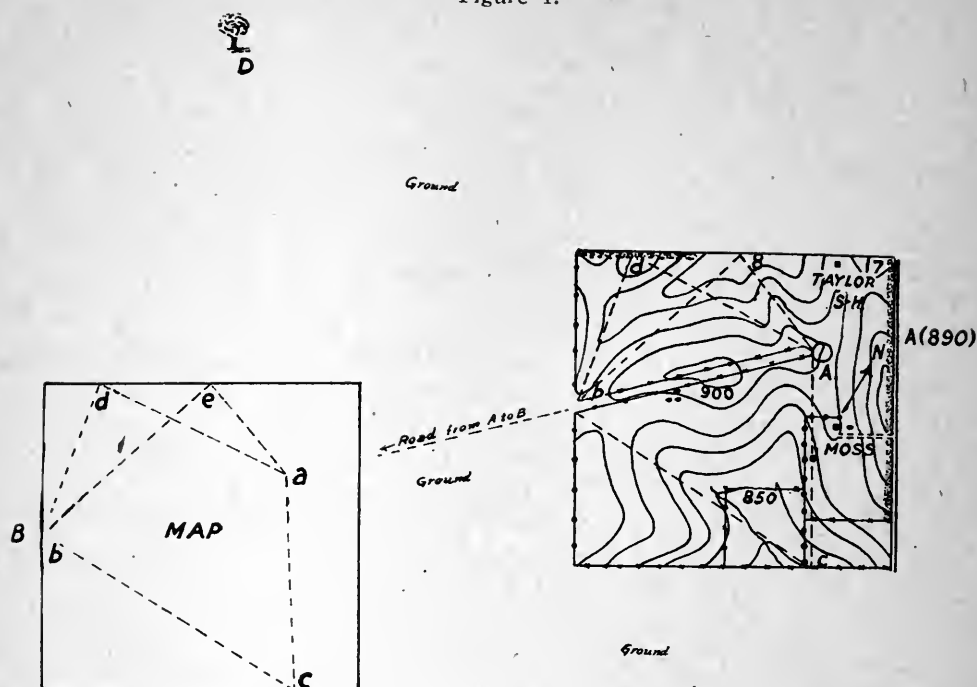
All kinds of military sketches are intended to give a military commander detailed information of the ground to be operated over, when this is not given by the existing maps, or when there are no maps of the area.

The general methods of sketching are:

- (1) The location of points by intersection.
- (2) The location of points by traversing.
- (3) The determination of the heights of hills, shapes of the ground, etc., by contours.

(1) *To locate a point by intersection proceed as follows:* Set up, level and orient the board, Fig. 4, p. 168, (or Sketching Case, Fig. 3, p. 167), at A, Fig. 1. The board is said to be oriented when the needle is parallel to the lines across the face of the compass, Fig. 3, of the cavalry case, or parallel to the sides of the compass trough of the drawing board, Fig. 4. (At every station the needle must have this position, so that every line on the sketch will be parallel to the corresponding line or direction on the ground.) Assume a point (A) on the paper, Fig. 1 Y, in such a position that the ground to be sketched will fall on the sheet. Lay the ruler on the board and point it to the desired point (C), all the while keeping the edge of the ruler on the point (A), Fig. 1 Y. Draw an indefinite line along the

Figure 1.



(Note: This diagram represents the sketching board.)

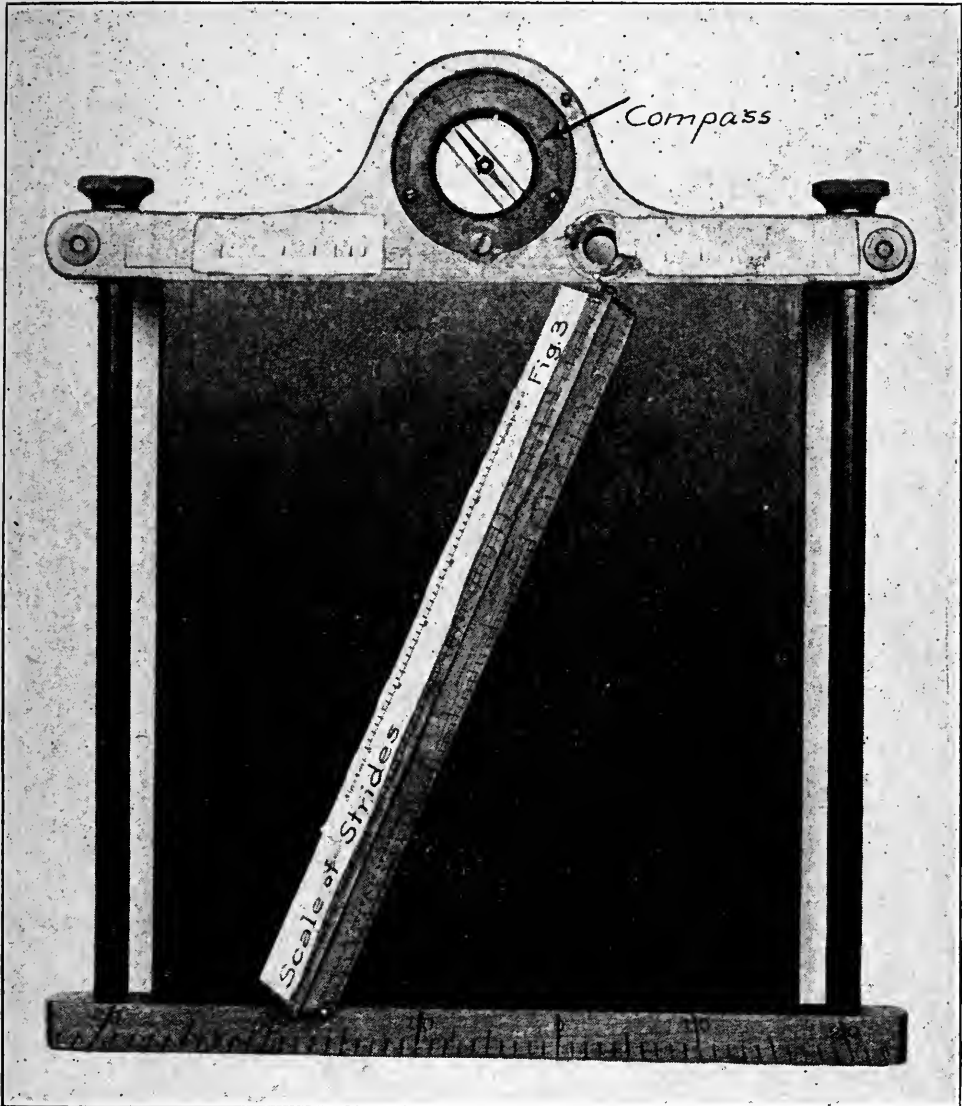
Fig. 1

C
10

edge. Now move to (B), Fig. 1 X, plotted on the map in (b), Fig. 1 X, and having set up, leveled and oriented as at (A), Fig. 1 Y, sight toward (C) as before. The intersection (crossing) of the two lines locates (C) on the sketch at (c), Fig. 1 X.

(2) *To locate a point by traversing is done as follows:* With the board set up, leveled and oriented at A, Fig. 1 Y, as above, draw a line in the direction of the desired point B, Fig. 1 X, and then move to B, counting

strides, keeping record of them with a tally register, Fig. 5, if one is available. Set up the board at B, Fig. 1 X, and orient it by laying the ruler along the line (a)-(b), Fig. 1 X, and moving the board until the ruler is directed toward A, Fig. 1 Y, on the ground; or else orient by the needle



(Sketching Case)—Figure 3.

as at A. With the scale of the sketcher's strides on the ruler, Fig. 3, lay off the number of strides found from A, Fig. 1 Y, to B, Fig. 1 X, and mark the point (b), Fig. 1 X. Other points, such as C, D, etc., would be located in the same way.



(Drawing Board)—Figure 4.

(3) *To draw in contours on a sketch, the following steps are necessary:*

(a) From the known or assumed elevation of a located station as A, Fig. 1 Y, (elevation 890), the elevations of all hill tops, stream junctures, stream sources, etc., are determined.

(b) Having found the elevations of these critical points the contours are put in by spacing them so as to show the slope of the ground along each line such as (a)-(b), (a)-(c), etc., Fig. 1 Y, as these slopes actually are on the ground.

To find the elevation of any point, say C (shown on sketch as c), proceed as follows:



(Tally Register)—Figure 5.



(Clinometer)—Figure 6.

Read the vertical angle with slope board, Fig. 4, or with a clinometer, Fig. 6. Suppose this is found to be 2 degrees; lay the scale of M. D.* (ruler, Fig. 4) along (a)-(c), Fig. 1 Y, and note the number of divisions of -2 degrees (minus 2°) between (a) and (c). Suppose there are found to be $5\frac{1}{2}$ divisions; then, since each division is 10 feet, the total height of A above C is 55 feet ($5\frac{1}{2} \times 10$). C is therefore 835 ft. elev. which is written at (c), Fig. 1 Y. Now looking at the ground along A-C, suppose you find it to be a very decided concave (hollowed out) slope, nearly flat at the bottom and steep at the top. There are to be placed in this space (a)-(c), Fig. 1 Y, contours 890, 880, 870, 860 and 850, and they would be spaced close at the top and far apart near (c), Fig. 1 Y, to give a true idea of the slope.

The above is the entire principle of contouring in making sketches and if thoroughly learned by careful repetition under different conditions, will enable the student to soon be able to carry the contours with the horizontal locations.

*The construction of a scale of M. D.'s is described under map reading, par. 28, page 18). Scales of M. D.'s can be obtained from the Secretary, Army Service School, Fort Leavenworth, Kans.

Position Sketching.

Instruments used in Position and Outpost sketching:

1. Drawing board with attached compass, Fig. 4.
2. Loose ruler (on board, Fig. 3 and 4).
3. Rough tripod or camera tripod.
4. Scale of M.D.'s (shown on ruler, Fig. 4).
5. Scale of the sketcher's strides (at 6" to 1 mile), shown on ruler, Fig. 3.
6. Clinometer (not absolutely necessary if board has slope board), Fig. 6.
7. Scale of hundreds of yards (shown on ruler, Fig. 3).

Methods to be used:

1. Select a Base Line, that is, a central line $\frac{1}{4}$ to $\frac{1}{2}$ mile long in the area to be sketched. The base should have at its end some plainly marked objects, such as telegraph poles, trees, corners of buildings, etc., and from its ends a good view of the area should be possible.

2. Set up, level and orient the drawing board at one end of the base (A), Fig. 1 Y. Draw a meridian on the sheet parallel to the position of the magnetic needle.

Assume a point (A), Fig. 1 Y, corresponding to the ground point (A), 890, on the sheet in such a position that the area to be sketched will lie on the sheet.

3. Sight at hill tops, stream junctures, stream heads, etc., to begin the location of these points by intersection. (See "*To locate a point by intersection*," page .)

4. Traverse to B and complete the locations by intersection as previously explained. (See "*To locate a point by traversing*," page .)

5. Draw the details of country between A and B and in the vicinity of this line, using the conventional signs for roads, houses, etc.

6. The lines from station (b), Fig. 1 X, to any of the other located points may now be used as a new base line to carry the work over additional area.

7. In case parts of the area are not visible from a base line, these parts are located by traversing as before explained.

8. Having learned by several repetitions the above steps, the sketcher will then combine contouring (see contouring above) with his horizontal locations.

Outpost Sketching.

The methods of Outpost Sketching are the same as for position sketching, except that the sketcher can not advance toward the supposed posi-

tion of the enemy beyond the outpost line. Therefore a base line must be selected on or in rear of the line of observation. From this base line all points visible toward the enemy are located by intersection or by traverse along the base line, details being shown by conventional signs and contours as for the position sketch.

Road Sketching.

Instruments used:

1. Drawing board or sketching case.
2. Loose ruler.
3. Scales of strides, if made dismounted; scale of time, trotting or walking, if mounted.
4. Scale of hundreds of yards, at 3" to 1 mile.
5. Scale of M. D.
6. Clinometer (if slope board not available).

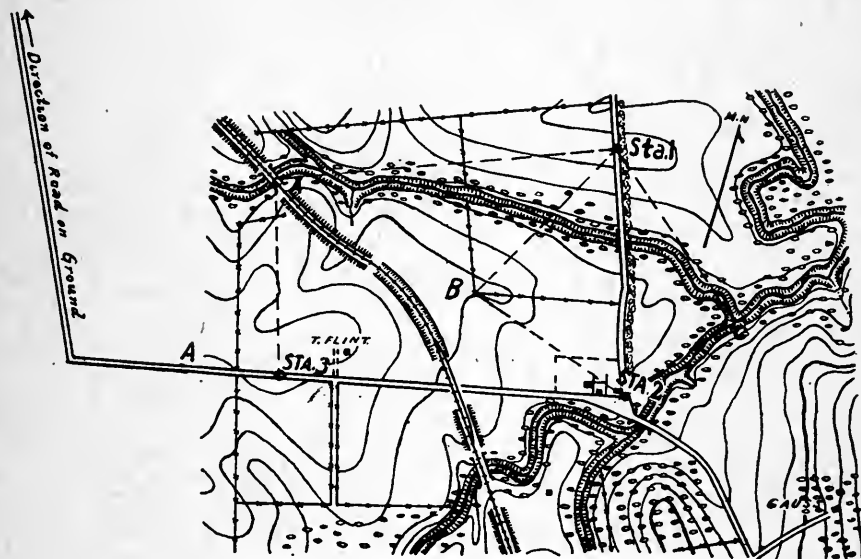


Figure 7.

Methods:

1. At station 1, Fig. 7, orient the board as described under "To locate a point by intersection," page , holding the board in the hands in front of the body of the sketcher who faces toward station 2.

2. Important points in the vicinity, such as the railroad bridge, the stream juncture, hill tops, are sighted for intersections, lines drawn as shown and the sketcher traverses (as under traverse above) to station 2.

3. At station 2, he locates and draws in all details between station 1 and 2 to include about 300 yards on each side of the road (described under "Position Sketching," page 170).

4. The traverse is then continued forward as described for 1 and 2.

5. After some practice in horizontal sketching, as just described, the sketcher will be able to take up contouring in combination. The methods are as described in paragraph on contouring.

6. Method to follow when the traverse runs off the paper as at A, Fig. 7; re-orient the board so that the road forward will lie across the long dimensions of the paper; draw a meridian parallel to the compass needle and assume a point on the new sheet corresponding to the last point (A) plotted on the first sheet.

7. On completion of the sketch the various sections will be pasted together, so that all the meridians are parallel.

Construction of Working Scales.—The construction of scales has already been explained under Map Reading in Par. 24, page 14. To make a *working scale* (one that is used by the person making a sketch), construct a scale of convenient length, about 6 inches, as described in Par. 24, to read in the units you intend to measure your distances with (your stride, pace, stride of a horse, etc.), to the scale on which you intend to make your sketch.

For example, suppose your stride is 66 inches long (33-inch pace) and you wish to make a sketch on a scale of 3 inches = 1 mile. The R. F. of this scale is $\frac{3 \text{ inches}}{1 \text{ mile}} = \frac{3 \text{ inches}}{63360 \text{ inches}} = \frac{1}{21120}$. That is 1 inch on your sketch is to represent 21,120 inches on the ground. As you intend to measure your ground distances by counting your strides of 66 inches length; 1 inch on the sketch will represent as many of your strides on the ground as 66 is contained into 21,120 = 320 strides. For convenience in sketching you wish to make your scale about 6 inches long. Since 1 inch represents 320 strides, 6 inches will represent $6 \times 320 = 1,920$ strides. As this is an odd number, difficult to divide into convenient subdivisions of hundreds, fifties, etc., construct your scale to represent 2,000 strides, which will give it a length slightly in excess of 6 inches—6.25. Lay off this length and divide it into ten main divisions of 200 strides each, and subdivide these into 50 stride divisions, as explained in Par. 24, page 14.*

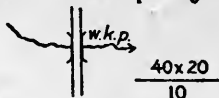
*Sheets of working scales reading in paces, strides, minutes, etc., at a scale of 3 and 6 inches to the mile, can be obtained at little cost from the Secretary, Army Service Schools, Fort Leavenworth, Kansas.

Bridge



Indicate character and span by abbreviations.

Example:



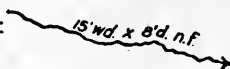
Meaning wooden king post bridge, 40 feet long, 20 feet wide, and 10 feet above the water

Streams



Indicate character by abbreviations.

Example:



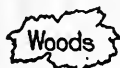
Meaning a stream 15 feet wide, 8 feet deep, and not fordable.

House -

Church *

School house = S.H.

Woods



Orchards

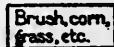


Cultivated Land

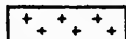


If boundary lines are fences they are indicated as such.

Brush, crops or grass, important as cover or forage



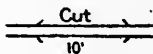
Cemetery



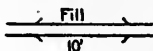
Trees, isolated



Cut and fill —



cut 10 feet deep



fill 10 feet high

For more elaborate map work the authorized conventional signs are used.

Points for Beginners to Remember.

1. Always keep your pencils sharpened and have an eraser handy. No one but an expert can sketch with a dull pencil.

2. Use hard pencils when learning to sketch—4H to 6H—and go over your work afterwards with a softer pencil—2H.

3. Do not try to put down on your sketch *a mass of small details* that are too small to be shown on the scale at which you are sketching. For example, if you are making a sketch on a scale of 3 inches = 1 mile, do not try to show each house in a row of houses; simply indicate that there is a row of houses by putting down several distinct conventional signs for houses, in a row; nor should you try to show every little "cut" through which the road may run. Only use about one sign to the inch for telegraph or telephone lines, for wire fences, etc.

4. When first practicing sketching *only plot the route over which you walk*, indicating it by a *single line*. When you can do this with facility, go back over one of these plotted routes and fill in the woods, houses, streams and the other large features.

5. The beginner should sketch the same ground several times over—at least three or four times. Practice alone will make perfect.

6. Always try to compare your finished sketch with an accurate map of the ground, if one is obtainable. Try to practice on ground of which you can obtain a map.

7. Make each course (the distance you go between points where the direction of your route changes) as long as possible.

8. *Do not try to contour until you are expert at making a sketch showing all the flat details* (roads, streams, woods, houses, etc.).

9. Never try to "sketch in" the contours until you have plotted the stream lines or the direction of the valleys, ravines, etc. The contours are fitted to or sketched around the drainage system; not the drainage system to the contours.

10. Always "size up" ground before you sketch it; that is, take a general view of it, noticing the *drainage system* (the direction in which the streams flow or ravines run), the prominent hills and ridges, the direction the roads run, etc.

OTHER BOOKS BY THE SAME AUTHOR.

Any of the books named can be gotten from:

THE U. S. INFANTRY ASSOCIATION, WASHINGTON, D. C.

The U. S. Cavalry Association, Fort Leavenworth, Kans.

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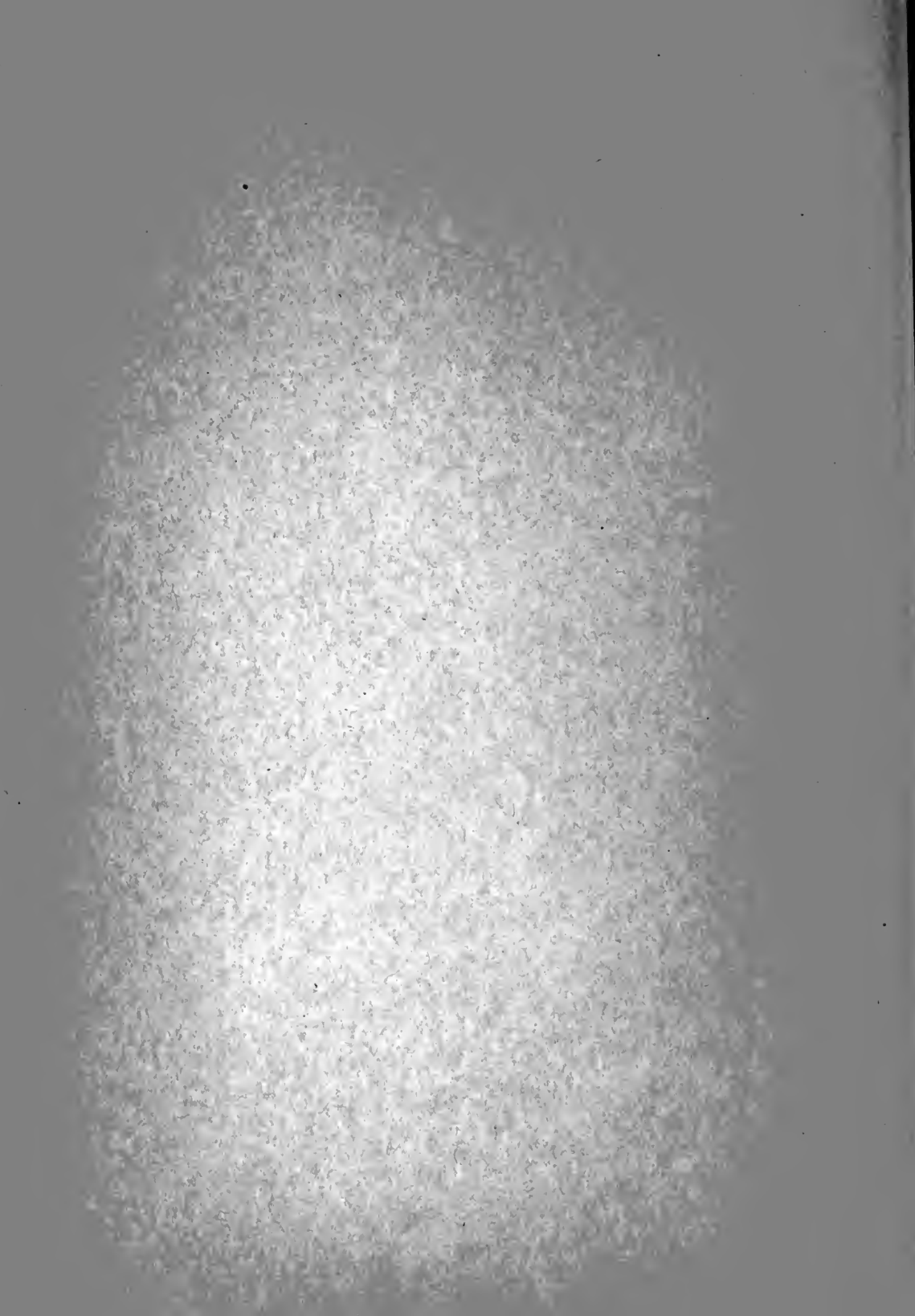
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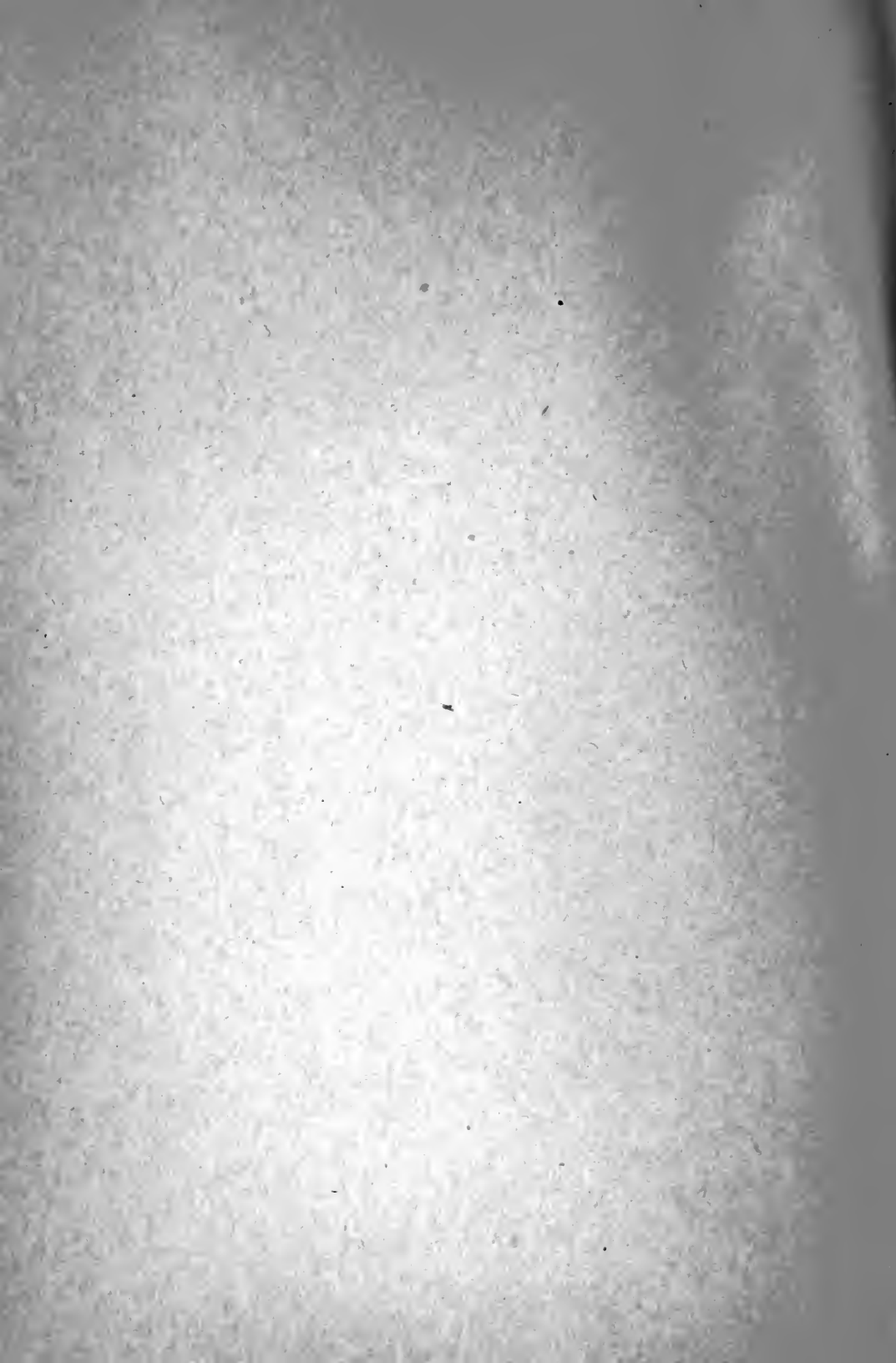
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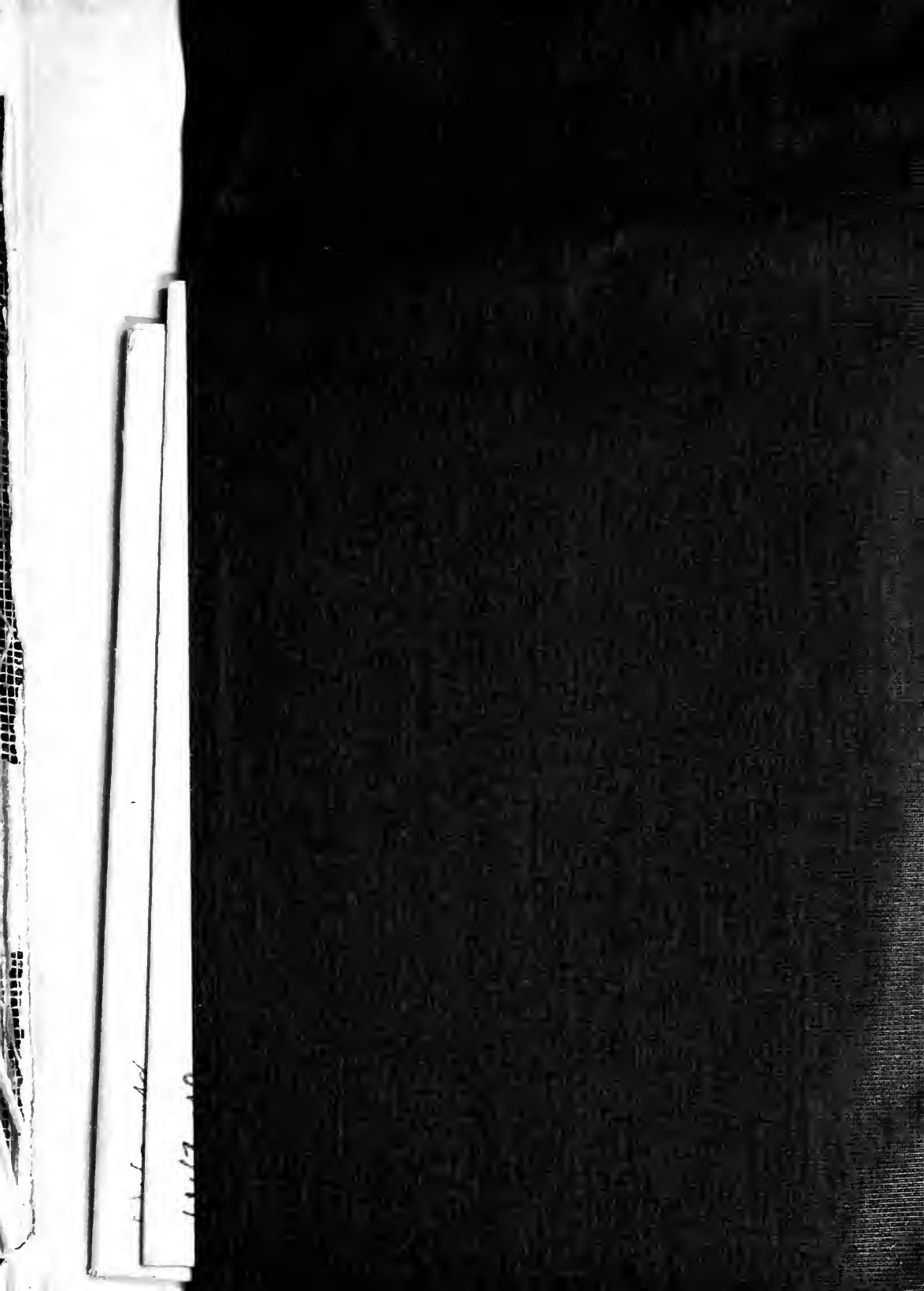














MAP of FORT LEAVENWORTH, KAS. and VICINITY

Compiled from Surveys made by the Staff Class of 1914-15, 1915-16

Under the direction of the

COMMANDANT

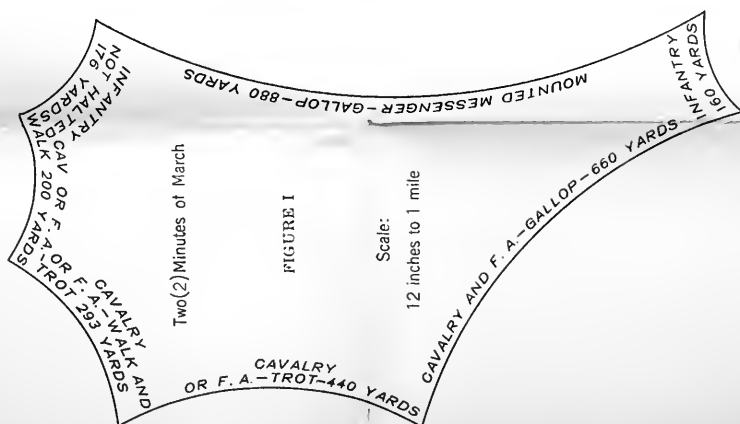
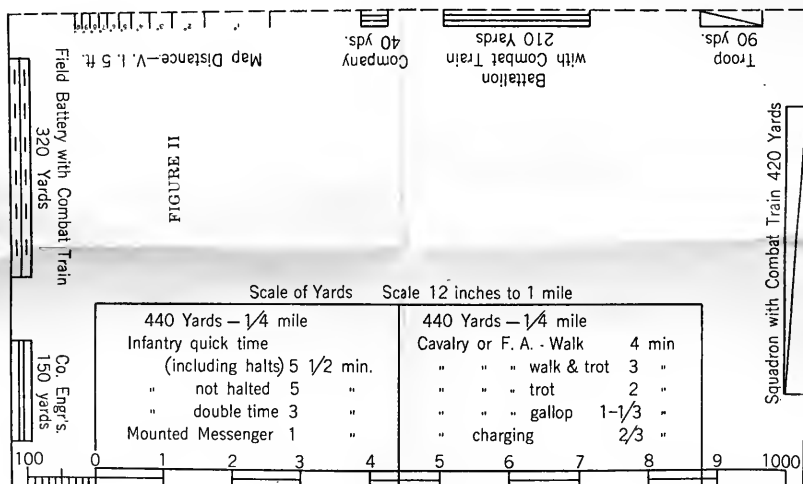
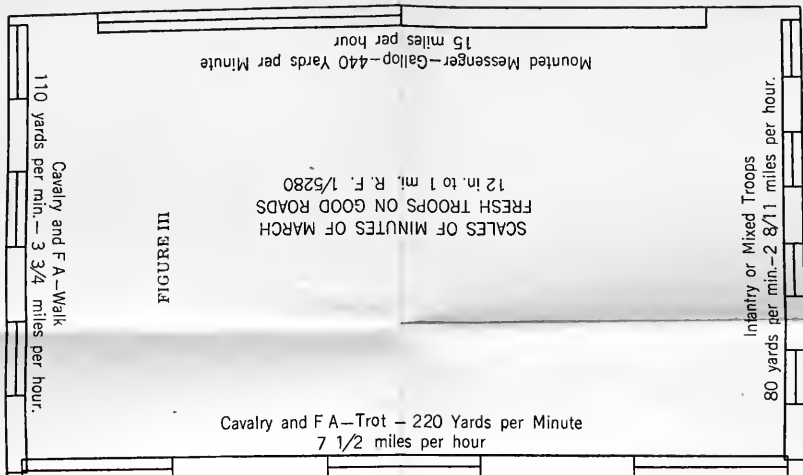
INFANTRY AND CAVALRY SCHOOLS, SIGNAL SCHOOL, AND
STAFF COLLEGE
January 1917

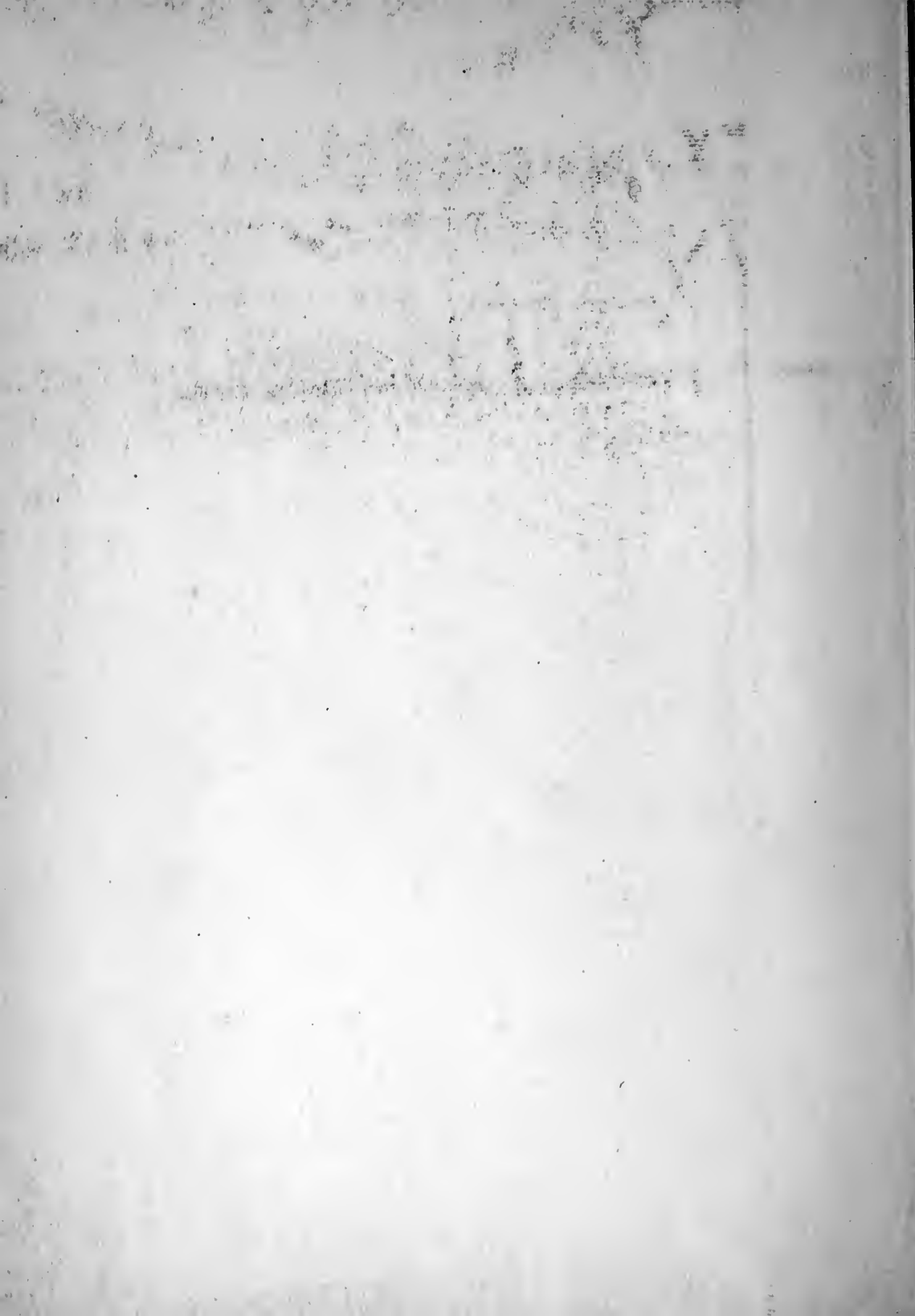
Scale
Center interval 300 ft.
Contour interval 300 ft.





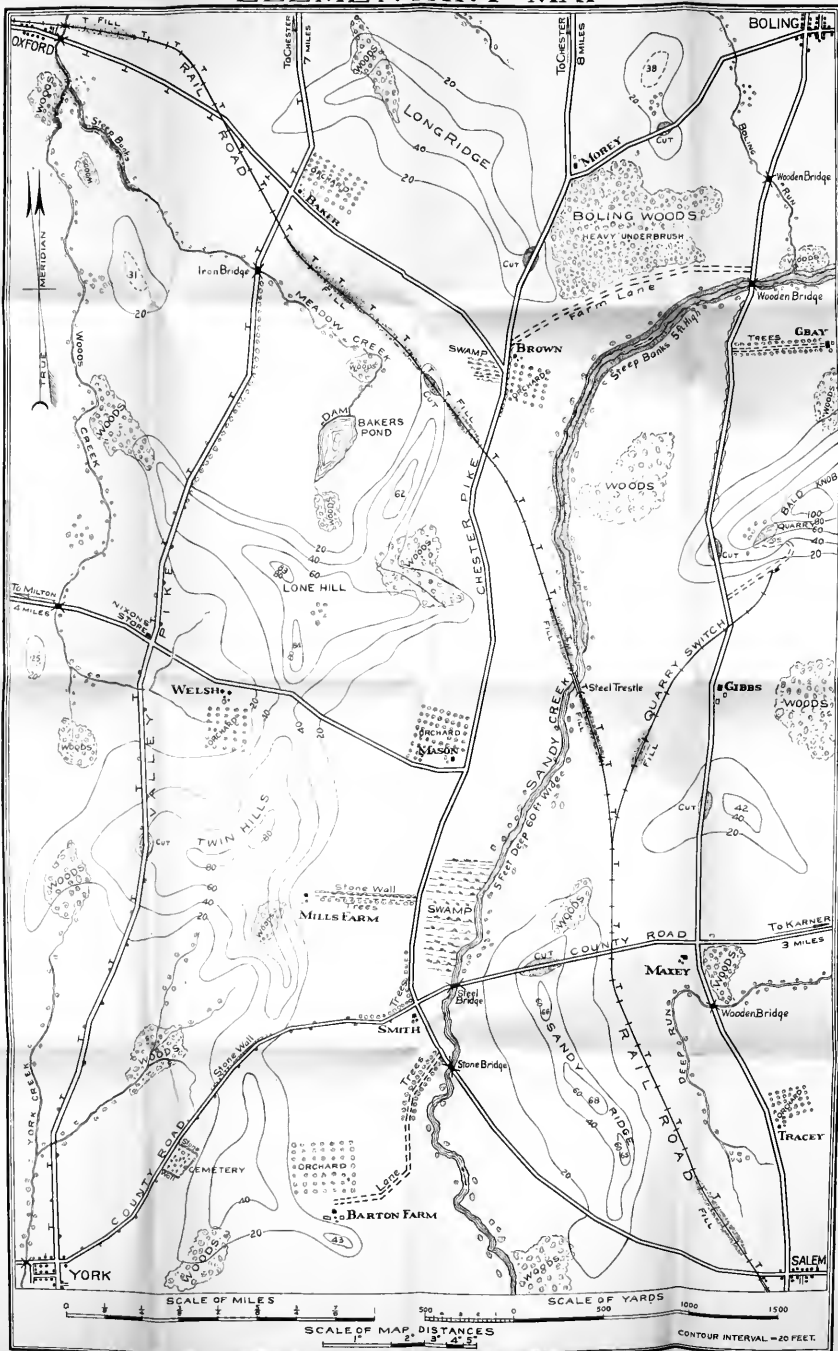
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